STANLEY®

Security Solutions

40H SERIES

HEAVY DUTY MORTISE LOCKS

STANLEY BEST ACCESS SYSTEMS

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1 GETTING STARTED

INTRODUCTION

The *40H Series Service Manual* contains essential information to help you maintain your 40H Series Locks.

CERTIFICATIONS AND STANDARDS

- The 40H Series Locks are listed by Underwriters Laboratories (U.S. and Canada) for use on 3 hr., A label doors.
- The 40H Series Locks are certified by Miami-Dade County Code Compliance Office for use in applications requiring a design pressure rating of ± 100 PSF for single doors and ± 50 PSF for double door openings.
- The 45H Locks meet or exceed ANSI A156.13, Series 1000, Grade 1 Operational and Grade 2 Security standards.
- The lock case and faceplate dimensions fit the standard door preparation as specified in ANSI A115.1.
- The strike fits the standard door frame cutout as specified in ANSI A115.1.
- Lever styles 3, 14 and 15 conform to California Administrative Code Title 19 and Title 24.

45H OVERVIEW

Lock characteristics

All 45H Mortise Locks have the following characteristics:

Feature	Dimensions
Case size	5 7/8″ × 4 1/4″ × 1″
Backset	2 3/4″
Door thickness range	1 3/4″ standard–up to 5″†

†. All mortise functions, except trim one side only functions, can be installed on 5″ thick doors if the mortise is centered in the door. Trim one-side-only functions can be installed on doors up to 2 1/2″ thick if the mortise is centered in the door.

Lock dimensions

The following diagram shows the dimensions for the 45H mortise case and strike.

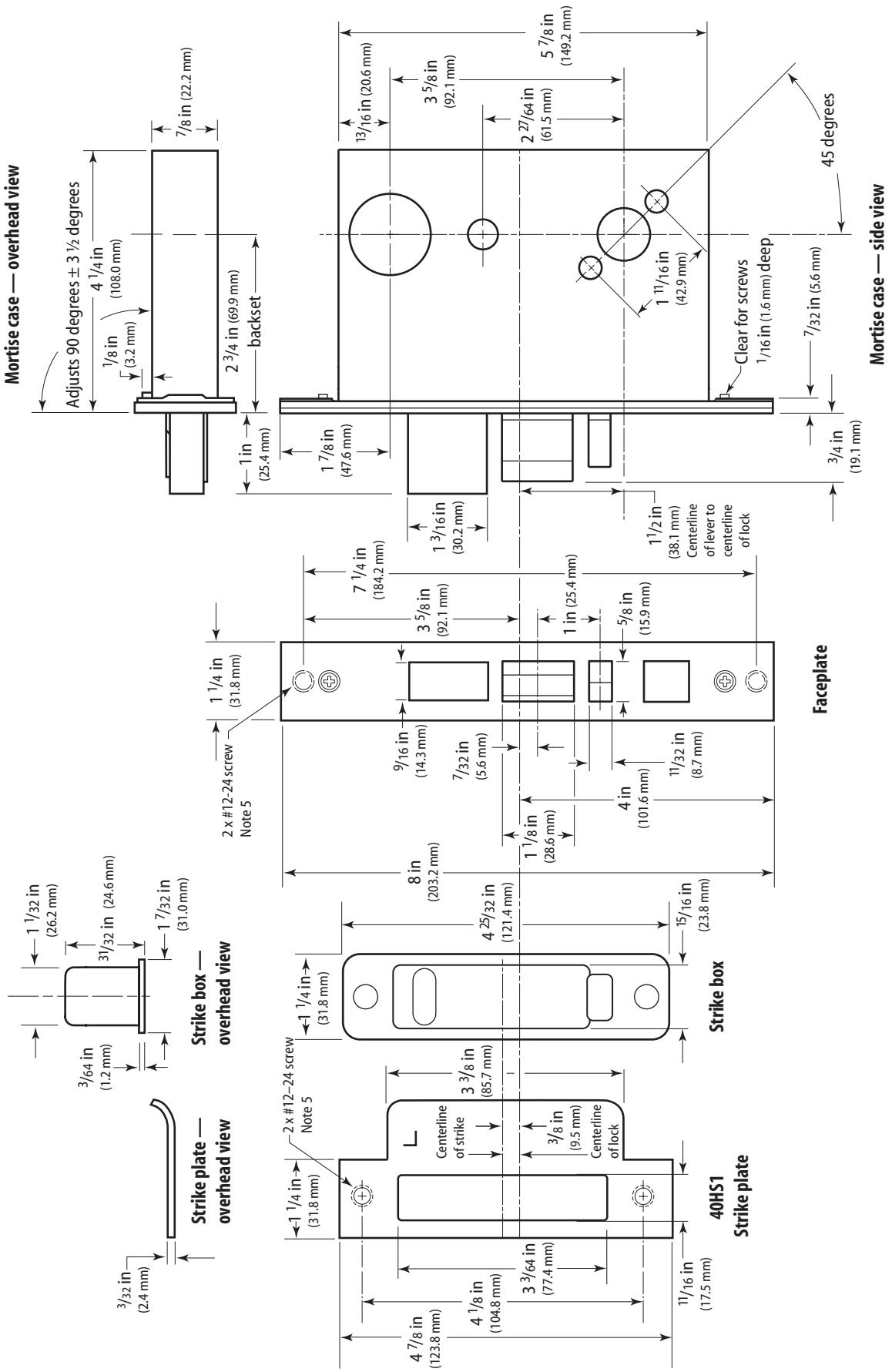

Mortise case — overhead view
Adjusts 90 degrees ± 3 ½ degrees
4 1/4 in (108.0 mm)
1/8 in (3.2 mm)
7/8 in (22.2 mm)
2 3/4 in (69.9 mm) backset
1 in (25.4 mm)
1 7/8 in (47.6 mm)
1 3/16 in (30.2 mm)
13/16 in (20.6 mm)
3 5/8 in (92.1 mm)
2 27/64 in (61.5 mm)
5 7/8 in (149.2 mm)
45 degrees
1 11/16 in (42.9 mm)
Clear for screws 1/16 in (1.6 mm) deep
7/32 in (5.6 mm)
3/4 in (19.1 mm)
Mortise case — side view
1 1/2 in (38.1 mm) Centerline of lever to centerline of lock
7 1/4 in (184.2 mm)
3 5/8 in (92.1 mm)
1 in (25.4 mm)
5/8 in (15.9 mm)
1 1/4 in (31.8 mm)
2 x #12-24 screw Note 5
9/16 in (14.3 mm)
7/32 in (5.6 mm)
11/32 in (8.7 mm)
4 in (101.6 mm)
1 1/8 in (28.6 mm)
8 in (203.2 mm)
Faceplate
1 1/32 in (26.2 mm)
31/32 in (24.6 mm)
1 7/32 in (31.0 mm)
3/64 in (1.2 mm)
Strike box — overhead view
4 25/32 in (121.4 mm)
15/16 in (23.8 mm)
1 1/4 in (31.8 mm)
Strike box
2 x #12–24 screw Note 5
3 3/8 in (85.7 mm)
Centerline of strike
3/8 in (9.5 mm)
Centerline of lock
1 1/4 in (31.8 mm)
3/32 in (2.4 mm)
Strike plate — overhead view
3 3/64 in (77.4 mm)
4 1/8 in (104.8 mm)
4 7/8 in (123.8 mm)
11/16 in (17.5 mm)
40HS1 Strike plate

Figure 1.1 45H mortise case and strike dimensions

48H OVERVIEW

Lock characteristics

All 48H Mortise Locks have the following characteristics:

Feature	Dimensions
Case size	4 3/16″ x 3 5/8″ x 1″
Backset	2 3/4″
Door thickness range	1 3/4″ standard–up to 5″†

†. All mortise functions, except R and trim one side only functions, can be installed on 5″ thick doors if the mortise is centered in the door.

Lock dimensions

The following diagram shows the dimensions of the 48H mortise case and strike.

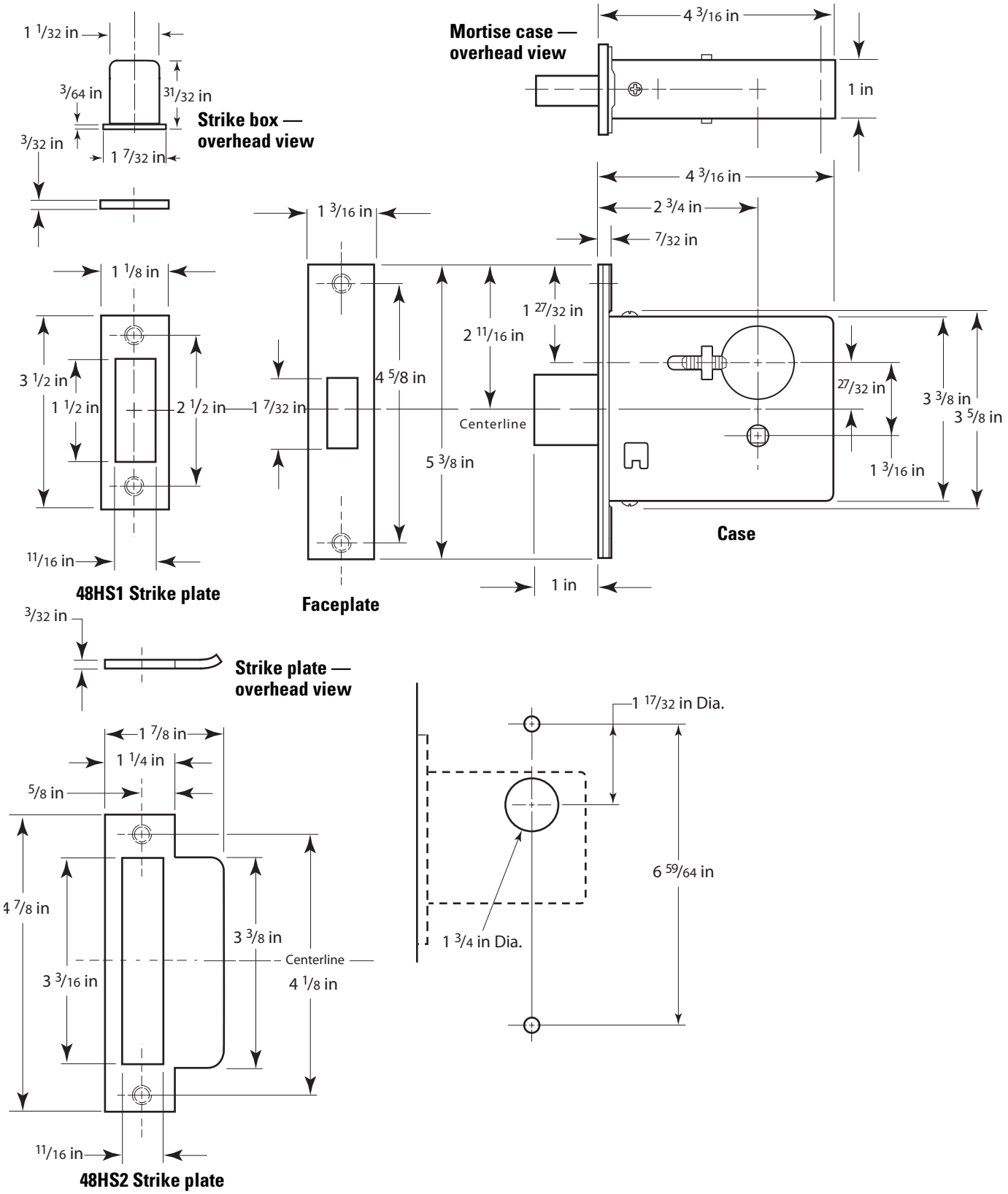


Figure 1.2 48H mortise case and strike dimensions

DOCUMENTATION PACKAGE

The following documentation is available to help you with the installation, start-up, and maintenance of your 40H Series Locks.

The installation and assembly instructions also can be ordered separately:

Document Title	Doc. No.
Installation Instructions for 45H Mortise Locks	T81162
Installation Instructions for 48H Mortise Locks	T81175
Installation Instructions for the Mortise Lock Cylinder	T61972

The templates required for lock installations also can be ordered separately:

Document Title	Doc. No.
H15 Template; Installation Template for 45H & 47H Mortise Locks	T81163
H16 Template; Installation Specifications for 45H & 47H Mortise Locks	T81166
H18 Template; Installation Template for 48H Mortise Locks	T81184
H17 Template; Installation Specifications for 48H & 49H Mortise Locks	T81183
E01 Template for 1E Cylinders	T61965
E06 Template for 1E7J4 and 1E7K4 Cylinders	T61970

TECHNICAL SUPPORT

Support services

When you have a problem with a 40H Series Lock, your first resource for help is the *40H Series Service Manual*. If you cannot find a satisfactory answer, contact your local BEST Representative.

Telephone technical support

A factory-trained Certified Product Specialist (CPS) is available in your area whenever you need help. Before you call, however, please make sure you are where the hardware is located, and that you are prepared to give the following information:

- what happened and what you were doing when the problem arose
- what you have done so far to fix the problem.

Best Access Systems Representatives provide telephone technical support for all 40H Series products. You may locate the Representative nearest you by calling (317) 849-2250 Monday through Friday, between 7:00 a.m. and 4:00 p.m. eastern standard time; or visit the web page www.BestAccess.com.

2 INTRODUCING THE 40H LOCK

OVERVIEW

The 40H Series Lock was designed to be easy to use, while at the same time maintaining the strength, durability, and dependability expected of a BEST mortise lock. In addition to the ability to quickly change the lock handing, the universal case design of the 40H Series Lock provides the ability to reconfigure a lock into many different functions easily and quickly, often by rearranging existing parts without opening the lock case. The 40H Series Lock lets you postpone decisions about how the lock will be configured all the way up to the point of installation, making it one of the most flexible and user-friendly mortise locks available.

WAYS TO ORDER

There are three ways to order 40H Series Locks—function-specific locks, universal locks, and three-part locks.

Function-specific locks

If you know exactly what you need in a mortise lock and are confident these needs will not change, order your 40H Series Locks in the traditional manner by specifying the exact function, trim, finish, and handing. The lock will be built to work exactly as specified, so it may not have the ability to be converted to another function.

Universal locks Order a universal lock to allow for the option of changing functions to meet future needs. Three universal functions are available that can be configured to a variety of common functions, all without opening the lock case. When any of the universal functions are ordered as a complete lock, all necessary parts (including trim) are provided to configure any of the functions in that group. Universal locks can only be ordered with sectional (rose) trim. If escutcheon (J) trim is needed, order a three-part lock as described below.

Three-part locks For maximum flexibility, a 40H Series Lock can be ordered in three parts— inside trim, case only, and outside trim. The kits associated with each of the three parts are designed so that when combined, all necessary components of a 40H Series Lock are present. This method of ordering is ideal for customers who want to stock a variety of trim designs with a minimal number of lock cases.

THE ADVANTAGE OF KITS

Often a service manual is nothing more than a parts catalog. With 40H Series Locks, we've raised the bar regarding the ease of ordering, installing, and maintaining the lock. This service manual reflects this streamlined approach.

When you order a part kit, rather than individual components, you get peace of mind knowing that the manufacturer has already gone through the work of matching up the right parts to ensure they all work together and, more importantly, that you get all the pieces you'll need. Through the use of nomenclature, you specify what you need based on the required application, and the factory assembles the appropriate parts to fill that need.

WORKING WITH UNIVERSAL FUNCTIONS

The universal case design allows a number of common functions to be configured starting from three universal functions. Some functions can be configured using the parts provided when ordering the complete lock. Others require additional or different trim that is applied to the universal case assembly. Also, some of the functions normally included in the universal locks have unnecessary internal parts that are removed when the lock is ordered as a specific function, limiting their ability to be converted to other functions.

The table below summarizes the conversion capabilities of the 40H Universal Function Locks.

	UNR	UNT	UNAB
What is the default function for the universal lock?	R	T	AB
Which functions can be configured when ordering a universal lock?	A, AT, D, N, NX, R	L, T	AB, TA, TD
Which functions can be built from a universal case, but require additional or different trim?	INL, ZD, XR, W	IND	HJ
Which functions found in universal locks have parts removed when they are ordered as specific functions, limiting their ability to be converted?	A, N, NX	L	TA, TD

The following functions must always be ordered by their specific function letters and require the case to be opened when converting to a different function:

- B
- B5
- B7
- BA
- BW
- CHB
- G
- LB
- LT
- RHB
- S

WORKING WITH TRIM KITS

A 40H trim kit is half of a complete trim package. An outside trim kit must be matched with the appropriate inside trim kit to operate with a lock. Each kit includes all parts, including fasteners, required for installation of the trim on one side of the door.

Because many lock functions share a common case assembly and differ only in trim, using trim kits is an easy and efficient way to convert between functions. The table below shows how to match the appropriate inside trim kit and outside trim kit with each function.

	Outside trim kit				Inside trim kit				
Function	OS1	OS2	OS3	OS4	IS1	IS2	IS3	IS4	IS5
A†		■			■				
AB‡		■				■			
AD				■					■
AT†		■				■			
B		■				■			
BA		■				■			
BW		■				■			
D†		■			■				
G		■					■		
HJ		■				■			
IND		■					■		
INL		■					■		
L††			■			■			
LB			■			■			
LT			■			■			
N†	■				■				
NX†	■				■				
R†		■			■				
S		■					■		
T††		■				■			
TA‡		■				■			
TD‡		■				■			
W		■					■		
WD				■				■	
YD				■					

†. Function can be created using a UNR case assembly.
‡. Function can be created using a UNAB case assembly.
††. Function can be created using a UNT case assembly.

The following functions, as well as any trim one side only applications, cannot use trim kits because they contain specialized trim components:

- 1DT
- 2DT
- HJ
- RD
- ZD
- XR
- B5
- B7

TRIM ONE SIDE LOCKS

Occasionally an application calls for a commonly-used lock function with either the inside or outside lever removed. These specialized configurations require a special letter designation to be appended to the function letter.

- If the inside lever is removed, an “X” is added to the standard function letter.
- If the outside lever is removed, a “Z” is added to the standard function letter.

The following table shows common applications with their corresponding speciality function designation.

Application	Standard function	Specialty function	Description
Classroom	R	XR	R function less outside lever
Storeroom	D	XD	D function less outside lever
Utility	D	ZD	D function less inside lever
Closet	R	ZR	R function less inside lever

Although only XR and ZD functions are included in this manual, nearly all 40H functions can be configured as X or Z functions. Contact your local BEST Representative for more details.

All trim one side locks use the special hook spindle to attach the remaining lever to the lock. See page 5–17 for more information about the hook spindle.

3 LOCK FUNCTIONS

The following pages contain function descriptions for all 45H Locks. For function descriptions for 48H Locks, see *Function descriptions* on page 7-2.

FUNCTIONS BY ANSI DESIGNATION AND LOCK FUNCTION QUICK REFERENCE

ANSI No.	45H Function
F01	N
F02	LB
F04	A, AT
F05	R
F06	RHB
F07	D
F08	BA
F09	C
F10	BA
F12	TA
F13	T
F14	G
F15	H, HJ
F16	YD
F17	AD
F18	WD
F19	L
F20	AB
F21	B
F29	RD
F30	W
F31	NX
F32	INL
F33	IND
F35	S

45H Function	35-37H Function†	Description page number	Diagram page number
1DT	1DT	See page 3-11	
2DT	2DT	See page 3-11	
A	E	See page 3-4	See page 4-2
AB	AW	See page 3-4	See page 4-12
AD	P	See page 3-9	See page 4-32
AT		See page 3-4	See page 4-4
B	B	See page 3-4	See page 4-14
BA	A	See page 3-5	See page 4-16
BW	BW	See page 3-5	See page 4-18
B5‡	B4/B5	See page 3-12	See page 4-20
B7‡	B6/B7	See page 3-12	See page 4-20
D	EW	See page 3-5	See page 4-4
G	C	See page 3-7	See page 4-20
HJ	HJ	See page 3-5	See page 4-22
IND	IND	See page 3-7	See page 4-24
INL	INL	See page 3-8	See page 4-4
L	LF	See page 3-10	See page 4-26
LB	L	See page 3-10	See page 4-28
LT		See page 3-10	See page 4-6
N	N	See page 3-10	See page 4-8
NX	Y	See page 3-10	See page 4-10
R	J	See page 3-6	See page 4-4
RD	R	See page 3-9	See page 4-34
S	W	See page 3-8	See page 4-16
T	FW	See page 3-6	See page 4-24
TA	F	See page 3-6	See page 4-30
TD	FD	See page 3-6	See page 4-22
W	WW	See page 3-8	See page 4-4
WD	T	See page 3-9	See page 4-32
XR		See page 3-12	See page 4-4
YD	S	See page 3-9	See page 4-32
ZD		See page 3-12	See page 4-4
UNR			
UNT			
UNAB			

†. With the introduction of the 40H Series Lock, BEST changed the mortise function letter designations to align them with the BEST cylindrical lock functions. This column shows the old 30H function designation for each function.

‡. The only difference between the 35H B4 versus B5 functions and the B6 versus B7 functions was the cylinder retaining screw. The B4 and B5 functions have been combined into the 45H B5 function. The B6 and B7 functions have been combined into the 45H B7 function.

FUNCTION DESCRIPTIONS

This section includes function descriptions grouped by the following function types:

- single-keyed (page 3–4)
- double-keyed (page 3–7)
- deadlocked (page 3–9)
- non-keyed (page 3–10)
- special (page 3–12)

Note: If the function is ANSI defined, the ANSI designation appears by the function name.

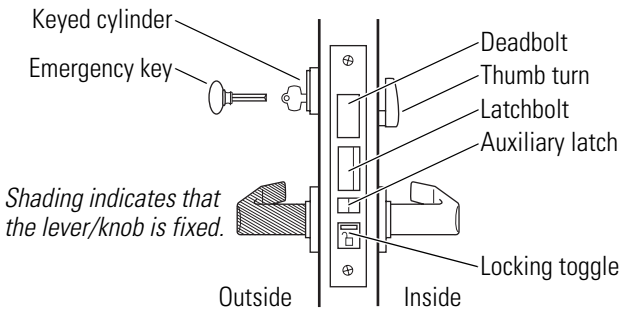
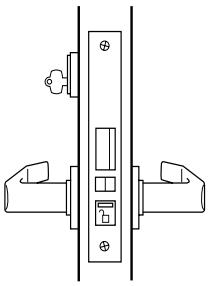


Figure 3.1 Understanding function drawings

Single-keyed functions

The following lists describe how the latchbolt, deadbolt, outside lever/knob, and inside lever/knob operate for each single-keyed 45H function

A–Office lock (ANSI F04)



Latchbolt operated by:
- outside key
- outside lever/knob when the locking toggle is in the unlocked position
- inside lever/knob

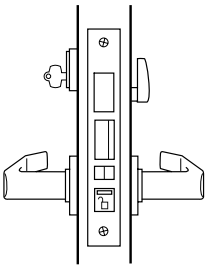
Latchbolt is deadlocked by an auxiliary latch

Outside lever/knob locked by:
- placing the locking toggle in the locked position

Outside lever/knob unlocked by:
- placing the locking toggle in the unlocked position

Inside lever/knob is always unlocked

AB–Office lock (ANSI F20)



Latchbolt operated by:
- outside key
- outside lever/knob when the locking toggle is in the unlocked position
- inside lever/knob

Latchbolt is deadlocked by an auxiliary latch

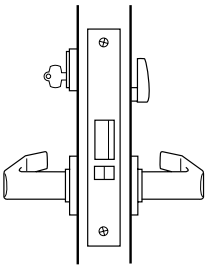
Deadbolt operated by:
- outside key
- inside thumb turn
- inside lever/knob retracts the deadbolt and latchbolt simultaneously

Outside lever/knob locked by:
- placing the locking toggle in the locked position
- extending the deadbolt

Outside lever/knob unlocked by:
- placing the locking toggle in the unlocked position

Inside lever/knob is always unlocked

AT–Office lock (ANSI F04)



Latchbolt operated by:
- outside key
- outside lever/knob when unlocked by outside or thumb turn
- inside lever/knob

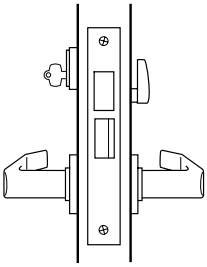
Latchbolt is deadlocked by an auxiliary latch

Outside lever/knob locked by:
- outside key
- inside thumb turn

Outside lever/knob unlocked by:
- outside key
- inside turn knob

Inside lever/knob is always unlocked

B–Entrance lock (ANSI F21)

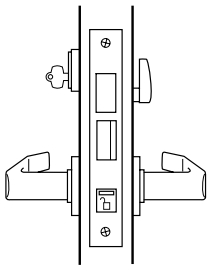


Latchbolt operated by:
- outside key
- outside lever/knob when the deadbolt is retracted
- inside lever/knob when the deadbolt is retracted

Deadbolt operated by:
- outside key
- inside thumb turn

Inside and outside lever/knob locked by:
- extending the deadbolt

BA–Entrance lock (ANSI F08)



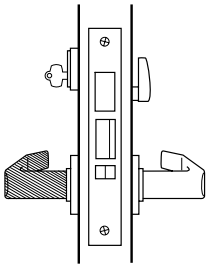
Latchbolt operated by:
- outside key
- outside lever/knob when the locking toggle is in the unlocked position
- inside lever/knob when the deadbolt is retracted

Deadbolt operated by:
- outside key
- inside thumb turn

Outside lever/knob locked by:
- extending the deadbolt
- placing the locking toggle in the locked position

Inside lever/knob locked by:
- extending the deadbolt

BW–Entrance or storeroom lock



Latchbolt operated by:
- outside key
- inside lever/knob when the deadbolt is retracted

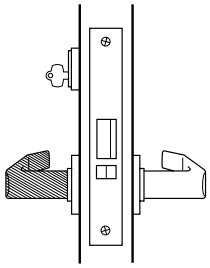
Latchbolt is deadlocked by an auxiliary latch

Deadbolt operated by:
- outside key
- inside thumb turn

Outside lever/knob is always fixed

Inside lever/knob locked by:
- extending the deadbolt

D–Storeroom lock (ANSI F07)



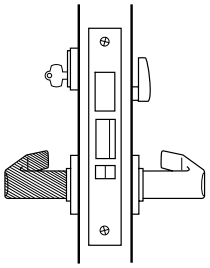
Latchbolt operated by:
- outside key
- inside lever/knob

Latchbolt is deadlocked by an auxiliary latch

Outside lever/knob is always fixed

Inside lever/knob is always unlocked

HJ–Hotel lock (ANSI F15)



Latchbolt operated by:
- outside key
- inside lever/knob

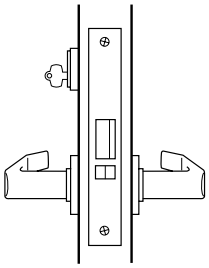
Latchbolt is deadlocked by an auxiliary latch

Deadbolt operated by:
- outside special master key
- inside thumb turn
- inside lever/knob retracts the deadbolt and latchbolt simultaneously

Outside lever/knob is always fixed

Inside lever/knob is always unlocked

R–Classroom lock (ANSI F05)



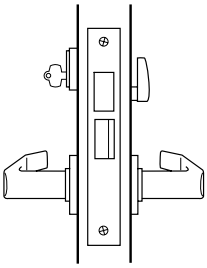
Latchbolt operated by:
- outside key
- outside lever/knob when unlocked by the outside key
- inside lever/knob

Latchbolt deadlocked by an auxiliary latch

Outside lever/knob locked and unlocked by:
- outside key

Inside lever/knob is always unlocked

T–Dormitory lock (ANSI F13)



Latchbolt operated by:
- outside lever/knob when deadbolt is retracted
- inside lever/knob

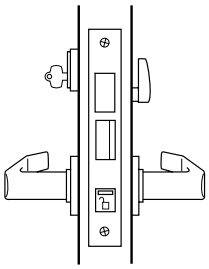
Deadbolt operated by:
- outside key
- inside thumb turn
- inside lever/knob retracts the deadbolt and latchbolt simultaneously

Outside lever/knob locked by:
- extending the deadbolt

Outside lever/knob unlocked by:
- retracting the deadbolt

Inside lever/knob is always unlocked

TA–Dormitory lock (ANSI F12)



Latchbolt operated by:
- outside key
- outside lever/knob when the locking toggle is in the unlocked position and the deadbolt is retracted
- inside lever/knob

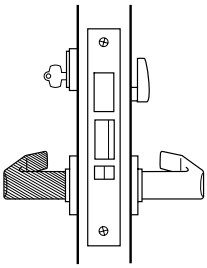
Deadbolt operated by:
- outside key
- inside thumb turn
- inside lever/knob retracts the deadbolt and latchbolt simultaneously

Outside lever/knob locked by:
- placing the locking toggle in the locked position
- extending the deadbolt

Outside lever/knob unlocked by:
- outside key and placing the locking toggle in the unlocked position

Inside lever/knob is always unlocked

TD–Dormitory lock



Latchbolt operated by:
- outside key
- inside lever/knob

Latchbolt is deadlocked by an auxiliary latch

Deadbolt operated by:
- outside key
- inside thumb turn
- inside lever/knob retracts the deadbolt and latchbolt simultaneously

Outside lever/knob is always fixed

Inside lever/knob is always unlocked

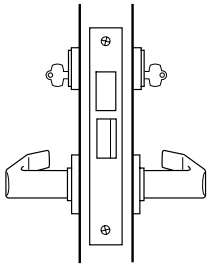
Double-keyed functions

The following lists describe how the latchbolt, deadbolt, outside lever/knob, and inside lever/knob operate for each double-keyed 45H function.

Warning!

Locks that secure both sides of the door are controlled by building codes and the Life Safety Code®. In an emergency exit situation, failure to quickly unlock the door could be hazardous, or even fatal.

G–Communicating lock (ANSI F14)



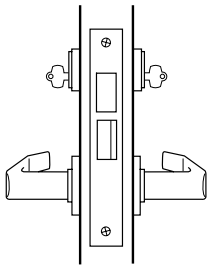
Latchbolt operated by:
- inside lever/knob when deadbolt is retracted
- outside lever/knob when deadbolt is retracted

Deadbolt operated by:
- outside key
- inside key

Outside lever/knob locked by:
- extending the deadbolt

Inside lever/knob locked and unlocked by:
- inside key
- outside key

IND–Intruder lock (ANSI F33)



Latchbolt operated by:
- outside key
- inside key
- outside lever/knob when deadbolt is retracted
- inside lever/knob

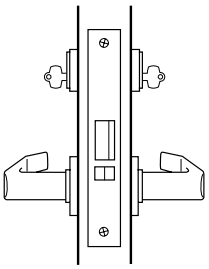
Deadbolt operated by:
- outside key
- inside key
- inside lever/knob retracts the deadbolt and latchbolt simultaneously

Outside lever/knob locked by:
- extending the deadbolt

Outside lever/knob unlocked by:
- retracting the deadbolt

Inside lever/knob is always unlocked

INL–Intruder lock (ANSI F32)



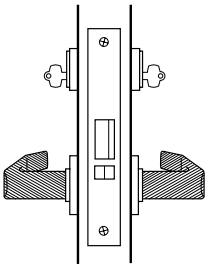
Latchbolt operated by:
- outside and inside key
- outside lever/knob when not locked by inside or outside key
- inside lever/knob

Latchbolt is deadlocked by an auxiliary latch

Outside lever/knob locked and unlocked by:
- outside key and inside key

Inside lever/knob is always unlocked

⚠ W–Storeroom lock (ANSI F30)



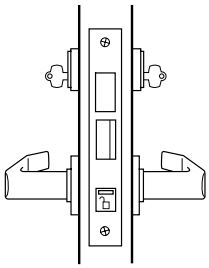
Latchbolt operated by:
- inside key
- outside key

Latchbolt is deadlocked by an auxiliary latch

Outside lever/knob is always fixed

Inside lever/knob is always fixed

⚠ S–Storeroom lock (ANSI F35)



Latchbolt operated by:
- outside and inside key
- outside lever/knob when the locking toggle is in the unlocked position
- inside lever/knob when the deadbolt is retracted

Deadbolt operated by:
- outside key
- inside key

Outside lever/knob locked by:
- placing the locking toggle in the locked position

Outside lever/knob unlocked by:
- retracting the deadbolt and placing the locking toggle in the unlocked position

Inside lever/knob locked by:
- extending the deadbolt

Inside lever/knob unlocked by:
- retracting the deadbolt

Note: When required, the inside cylinder may be combinated to operate by master key only.

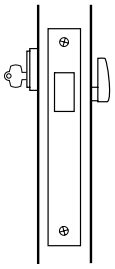
Deadlocked functions

The following lists describe how the deadbolt operates for each deadlocked 45H function.

Warning!

Locks that secure both sides of the door are controlled by building codes and the Life Safety Code®. In an emergency exit situation, failure to quickly unlock the door could be hazardous, or event fatal.

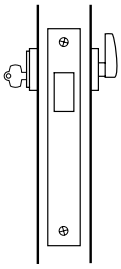
AD–Deadlock (ANSI F17)



Deadbolt operated by:

- outside key
- inside thumb turn

RD–Classroom deadlock (ANSI F29)



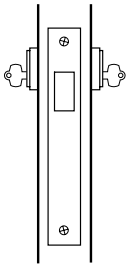
Deadbolt operated by:

- outside key
- inside thumb turn

Note 1: Specify the hand of the door.

Note 2: Inside turn knob retracts the deadbolt, but does not project it.

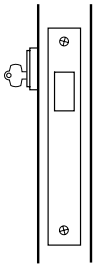
WD–Deadlock (ANSI F16)



Deadbolt operated by:

- outside key
- inside key

YD–Deadlock (ANSI F18)



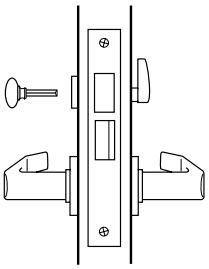
Deadbolt operated by:

- outside key

Non-keyed functions

The following lists describe how the latchbolt, deadbolt, outside lever/knob, and inside lever/knob operate for each non-keyed 45H function.

L–Privacy lock (ANSI F19)



Latchbolt operated by:
- outside lever/knob when the deadbolt is retracted
- inside lever/knob

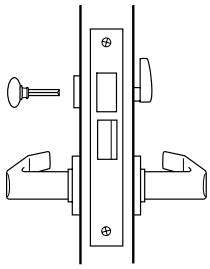
Deadbolt operated by:
- outside emergency key
- inside thumb turn
- inside lever/knob retracts the deadbolt and latchbolt simultaneously

Outside lever/knob locked by:
- outside emergency key
- inside thumb turn

Outside lever/knob unlocked by:
- outside emergency key
- inside thumb turn
- inside lever/knob

Inside lever/knob is always unlocked

LB–Privacy lock (ANSI F02)



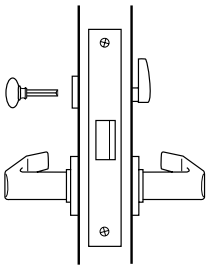
Latchbolt operated by:
- outside lever/knob when the deadbolt is retracted
- inside lever/knob when the deadbolt is retracted

Deadbolt operated by:
- outside emergency key
- inside thumb turn

Inside and outside lever/knob locked by:
- extending the deadbolt

Inside and outside lever/knob unlocked by:
- retracting the deadbolt

LT–Privacy lock



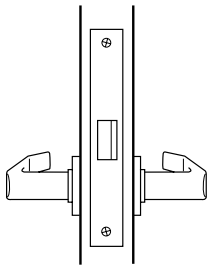
Latchbolt operated by:
- outside lever when thumb turn is unlocked
- inside lever/knob

Outside lever/knob locked by:
- outside emergency key
- inside thumb turn

Outside lever/knob unlocked by:
- outside emergency key
- inside thumb turn
- inside lever/knob

Inside lever/knob is always unlocked

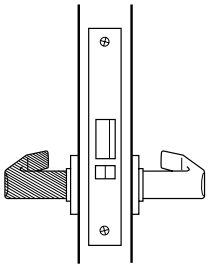
N–Passage lock (ANSI F01)



Latchbolt operated by:
- outside lever/knob
- inside lever/knob

Inside and outside levers/knobs are always unlocked

NX–Exit lock (ANSI F31)



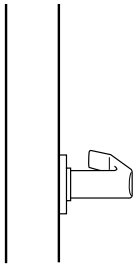
Latchbolt operated by:
- inside lever/knob

Latchbolt is deadlocked by an auxiliary latch

Outside lever/knob is always fixed

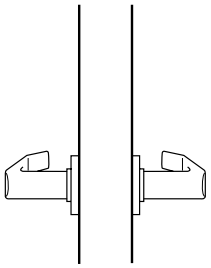
Inside lever/knob is always unlocked

1DT–Single dummy trim



This product is a single, surface mounted lever/knob for an inactive door or a non-latching door.

2DT–Double dummy trim



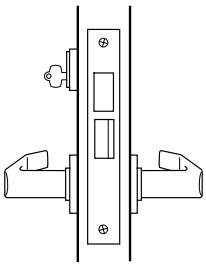
This product is a through-bolt mounted pair of matching levers/knobs for an inactive door or a non-latching door.

Special functions

The following lists describe how the latchbolt, deadbolt, outside lever/knob, and inside lever/knob operate for each special 45H function.

Locks that secure both sides of the door are controlled by building codes and the Life Safety Code®. In an emergency exit situation, failure to quickly unlock the door could be hazardous, or even fatal.

B5–Entrance lock



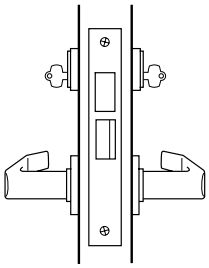
Latchbolt operated by:
- outside key
- outside lever/knob when the deadbolt is retracted
- inside lever/knob when the deadbolt is retracted

Deadbolt operated by:
- outside key

Inside and outside lever/knob locked by:
- extending the deadbolt

Note 1: Trim is removable from the outside only.
Note 2: The only difference between the 35H B4 and B5 functions was the cylinder retaining screw. The B4 and B5 functions have been combined into the 45H B5 function.

B7–Entrance lock



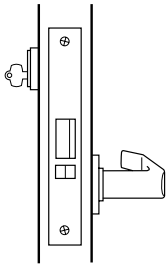
Latchbolt operated by:
- inside key
- outside key
- outside lever/knob when the deadbolt is retracted
- inside lever/knob when the deadbolt is retracted

Deadbolt operated by:
- outside key
- inside key

Inside and outside lever/knob locked by:
- extending the deadbolt

Note 1: Trim is removable from the outside only.
Note 2: The only difference between the 35H B6 and B7 functions was the cylinder retaining screw. The B6 and B7 functions have been combined into the 45H B7 function.

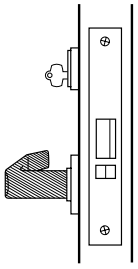
XR–Classroom lock



Latchbolt operated by:
- outside key
- inside lever/knob

Inside lever/knob is always unlocked

ZD–Storeroom lock



Latchbolt operated by:
- outside key

Latchbolt is deadlocked by an auxiliary latch

Outside lever is always locked

4 MORTISE CASE PARTS

The following pages contain exploded diagrams and parts lists for 45H mortise cases. For exploded diagrams and parts lists for 48H mortise cases, see *48H Mortise case parts* on page 7-3.

A FUNCTION CASE—OFFICE LOCK

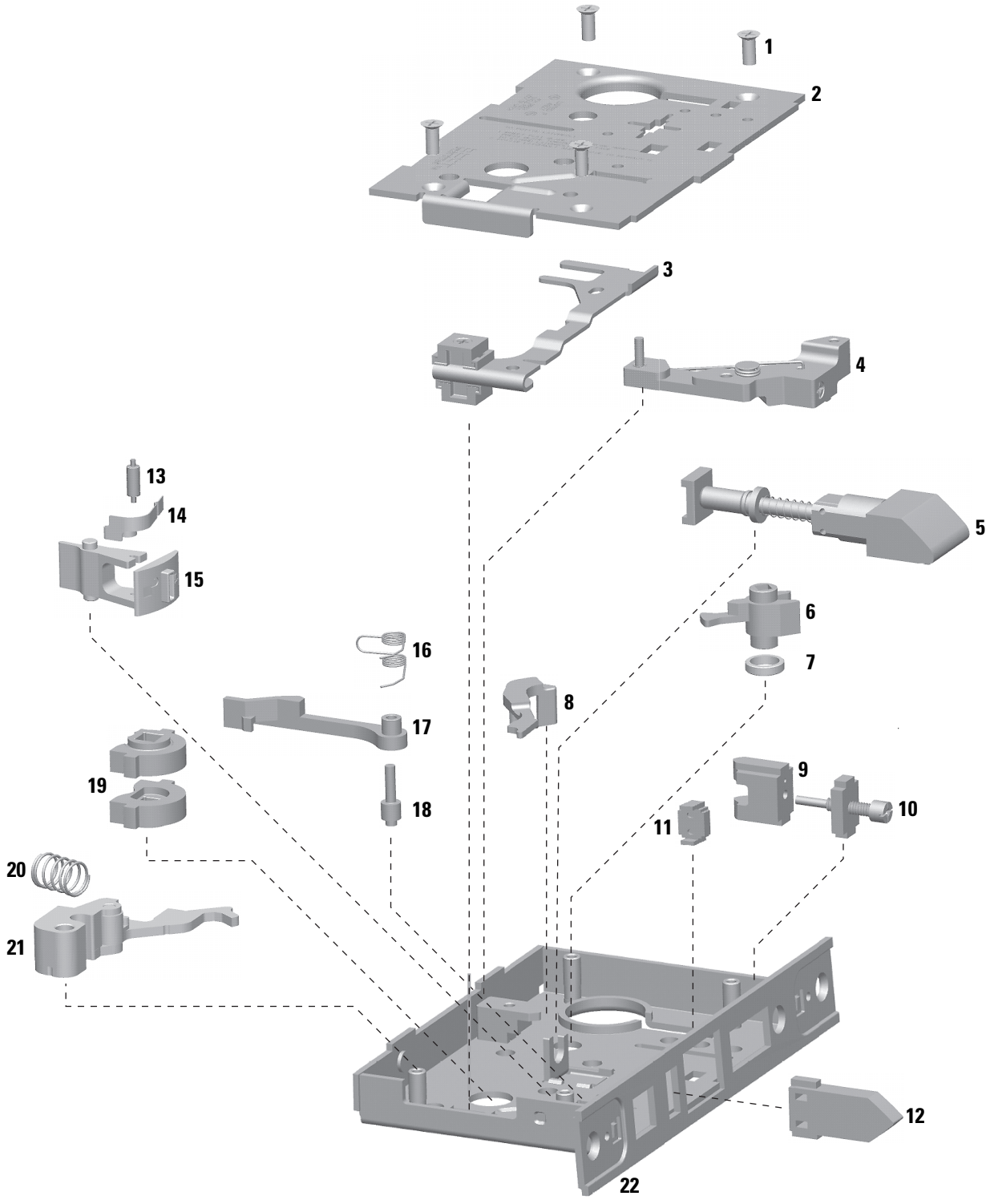


Figure 4.1 A function case exploded diagram

A function case parts list

Refer to Figure 4.1 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45040	1	Key release shuttle assembly
5	B45020	1	Latchbolt sub-assembly
6	C44108	1	Turn knob hub (lost motion)
7	A34120	1	Turn knob hub spacer
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	C44142	1	Auxiliary bolt
13	A44188	1	Toggle roller
14	B44190	1	Toggle lever spring
15	C44100	1	Toggle lever
16	B44194	1	Deadlocking lever spring
17	C44148	1	Deadlocking lever
18	A44184	1	Deadlocking lever pin
19	C44146	2	Hub
20	A44193	1	Release lever spring
21	C45010	1	Release lever sub-assembly
22	C45000	1	Case sub-assembly

a. For a complete case, use C45504.

AT FUNCTION CASE—OFFICE LOCK
D FUNCTION CASE—STOREROOM LOCK
INL FUNCTION CASE—INTRUDER LOCK
R FUNCTION CASE—CLASSROOM LOCK
W FUNCTION CASE—STOREROOM LOCK
ZD FUNCTION CASE—STOREROOM LOCK
XR FUNCTION CASE—CLASSROOM LOCK

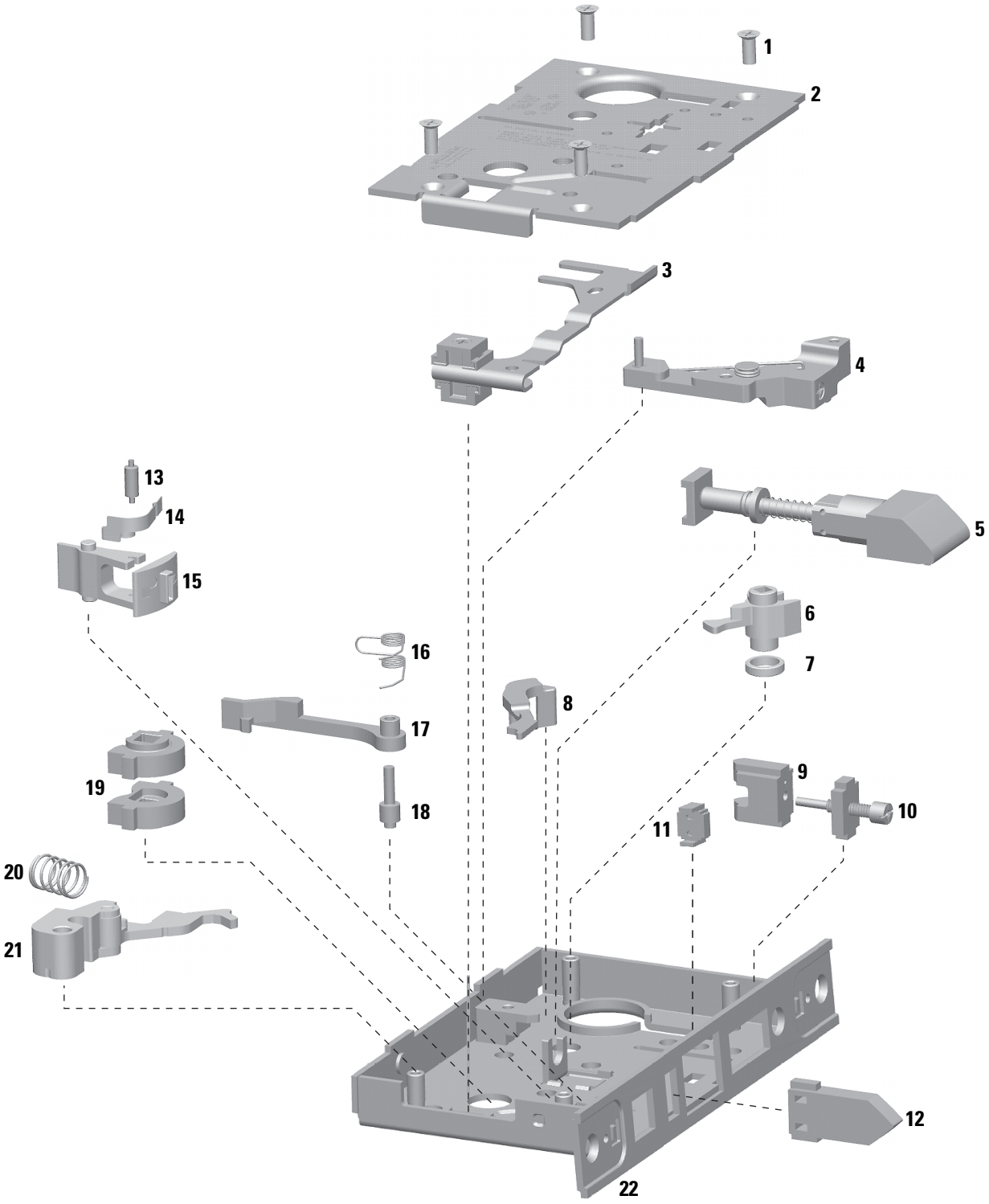


Figure 4.2 AT, D, INL, R, W, ZD, XR function case exploded diagram

AT, D, INL, R, W, ZD, XR function case parts list

Refer to Figure 4.2 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45040	1	Key release shuttle assembly
5	B45020	1	Latchbolt sub-assembly
6	C44106	1	Turn knob hub (non-deadbolt)
7	A34120	1	Turn knob hub spacer
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	C44142	1	Auxiliary bolt
13	A44188	1	Toggle roller
14	B44190	1	Toggle lever spring
15	C44100	1	Toggle lever
16	B44194	1	Deadlocking lever spring
17	C44148	1	Deadlocking lever
18	A44184	1	Deadlocking lever pin
19	C44146	2	Hub
20	A44193	1	Release lever spring
21	C45010	1	Release lever sub-assembly
22	C45000	1	Case sub-assembly

a. For a complete case assembly, use C45507 and reconfigure the shuttle screws as needed. See *Changing the function for universal cases* on page 6-4.

LT FUNCTION CASE—PRIVACY LOCK

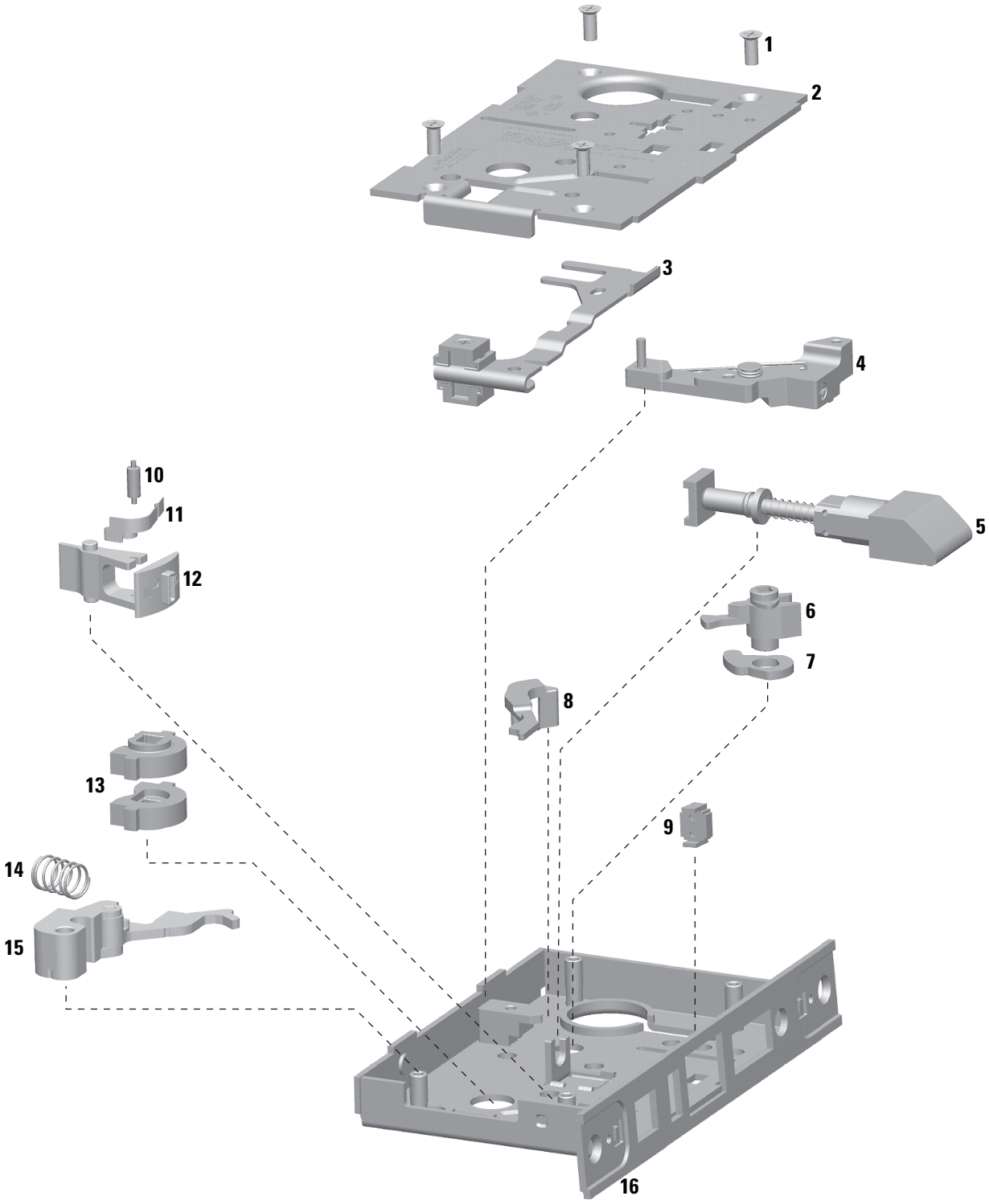


Figure 4.3 LT function case exploded diagram

LT function case parts list

Refer to Figure 4.3 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45040	1	Key release shuttle assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	A34032	1	Turn knob hub cam
8	C44110	1	Key release lever
9	B44166	1	Fusible link molded assembly
10	A44188	1	Toggle roller
11	B44190	1	Toggle lever spring
12	C44100	1	Toggle lever
13	C44146	2	Hub
14	A44193	1	Release lever spring
15	C45010	1	Release lever sub-assembly
16	C45000	1	Case sub-assembly

a. For a complete case, use C45520.

N FUNCTION CASE—PASSAGE LOCK

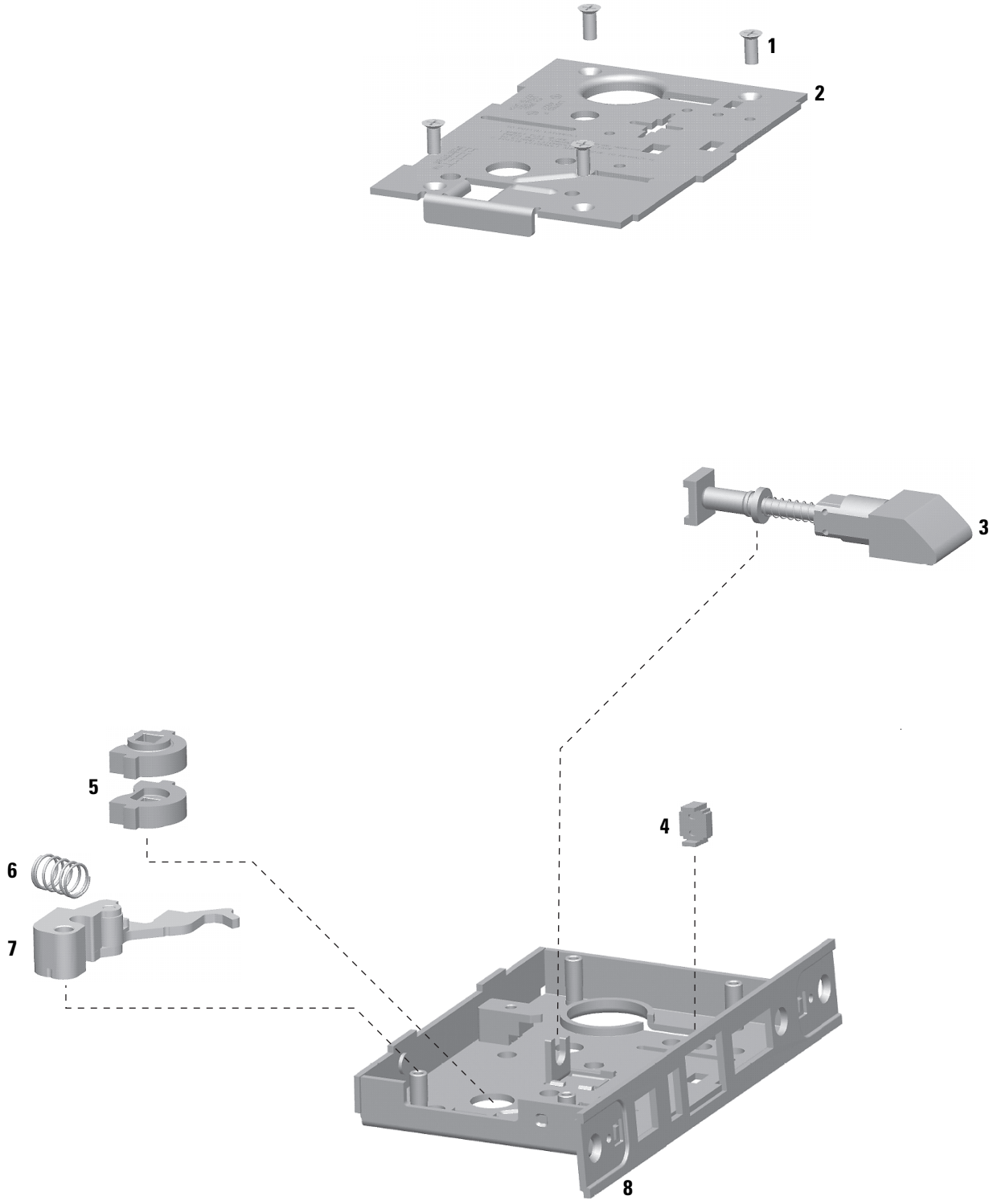


Figure 4.4 N function case exploded diagram

N function case parts list

Refer to Figure 4.4 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	B45020	1	Latchbolt sub-assembly
4	B44166	1	Fusible link molded assembly
5	C44146	2	Hub
6	A44193	1	Release lever spring
7	C45010	1	Release lever sub-assembly
8	C45000	1	Case sub-assembly

a. For a complete case, use C45505.

NX FUNCTION CASE—EXIT LOCK

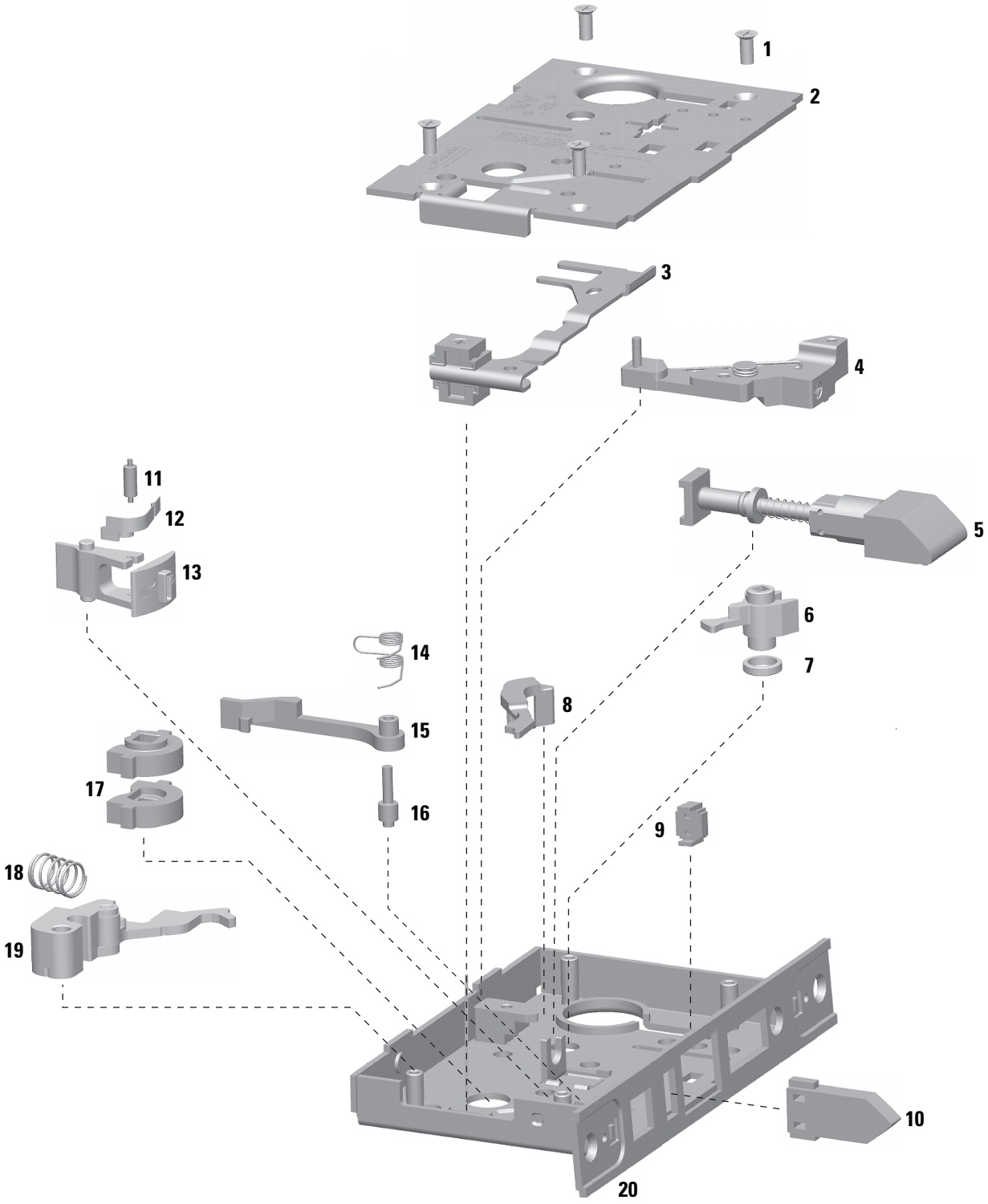


Figure 4.5 NX function case exploded diagram

NX function case parts list

Refer to Figure 4.5 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45040	1	Key release shuttle assembly
5	B45020	1	Latchbolt sub-assembly
6	C44106	1	Turn knob hub (non-deadbolt)
7	A34120	1	Turn knob hub spacer
8	C44110	1	Key release lever
9	B44166	1	Fusible link molded assembly
10	C44142	1	Auxiliary bolt
11	A44188	1	Toggle roller
12	B44190	1	Toggle lever spring
13	C44100	1	Toggle lever
14	B44194	1	Deadlocking lever spring
15	C44148	1	Deadlocking lever
16	A44184	1	Deadlocking lever pin
17	C44146	2	Hub
18	A44193	1	Release lever spring
19	C45010	1	Release lever sub-assembly
20	C45000	1	Case sub-assembly

a. For a complete case, use C45506.

AB FUNCTION CASE—OFFICE LOCK

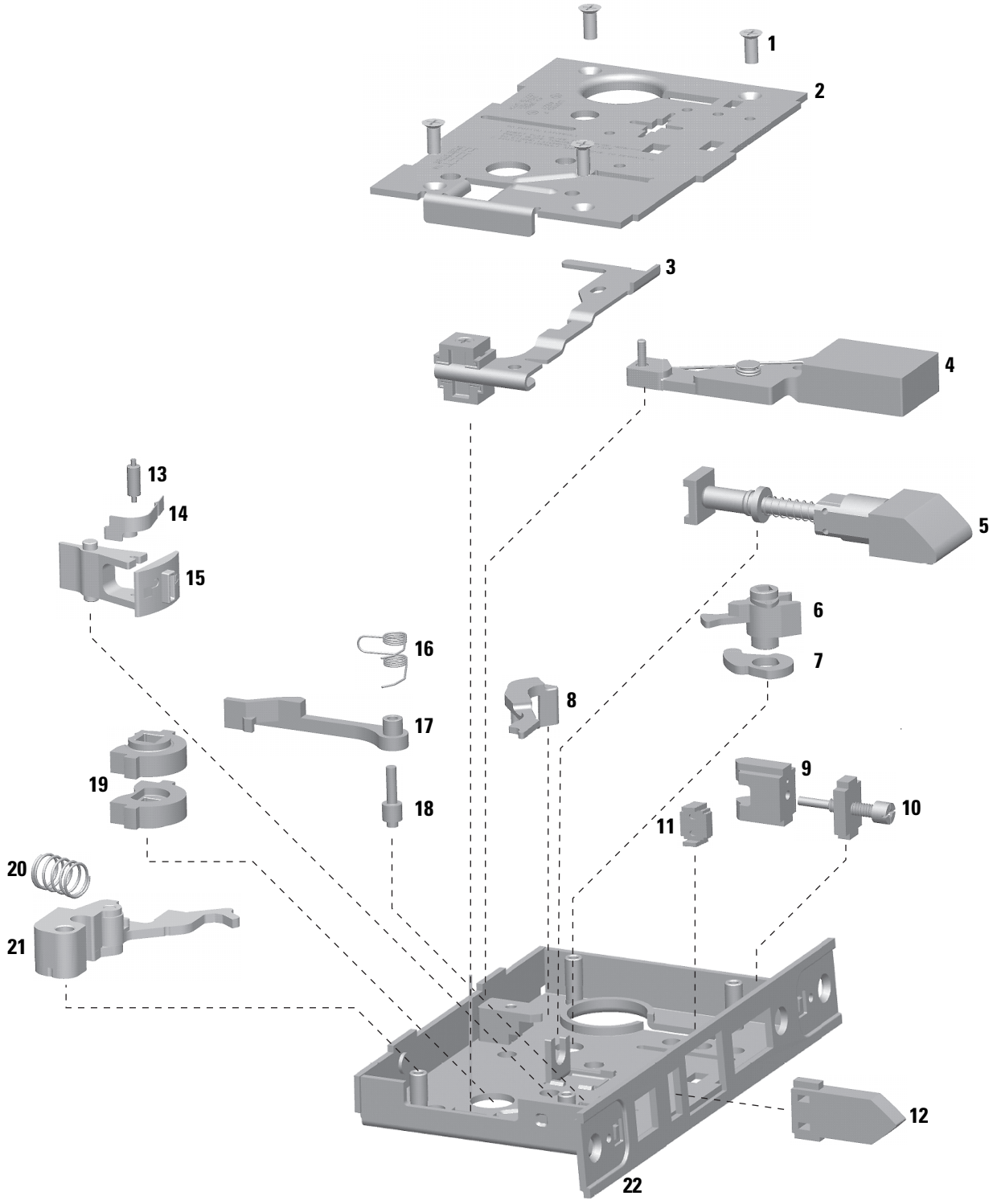


Figure 4.6 AB function case exploded diagram

AB function case parts list

Refer to Figure 4.6 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45032	1	"F" locking lever sub-assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	B34032	1	Turn knob hub cam
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	C44142	1	Auxiliary bolt
13	A44188	1	Toggle roller
14	B44190	1	Toggle lever spring
15	C44100	1	Toggle lever
16	B44194	1	Deadlocking lever spring
17	C44148	1	Deadlocking lever
18	A44184	1	Deadlocking lever pin
19	C44146	2	Hub
20	A44193	1	Release lever spring
21	C45010	1	Release lever sub-assembly
22	C45000	1	Case sub-assembly

a. For a complete case, use C45502.

B FUNCTION CASE—ENTRANCE LOCK

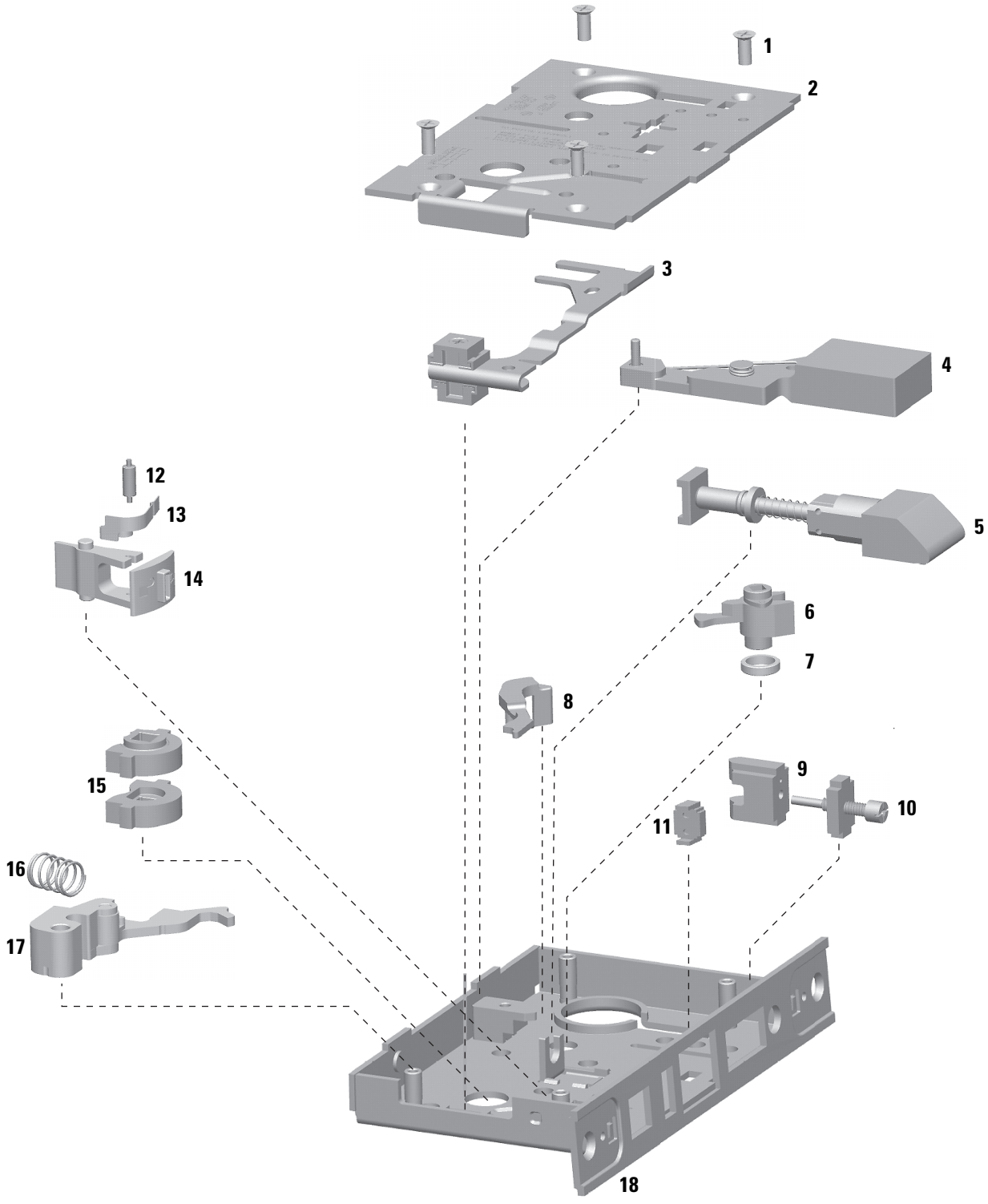


Figure 4.7 B function case exploded diagram

B function case parts list

Refer to Figure 4.7 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	A34120	1	Turn knob hub spacer
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	A44188	1	Toggle roller
13	B44190	1	Toggle lever spring
14	C44100	1	Toggle lever
15	C44146	2	Hub
16	A44193	1	Release lever spring
17	C45010	1	Release lever sub-assembly
18	C45000	1	Case sub-assembly

a. For a complete case, use C45510.

BA FUNCTION CASE—ENTRANCE LOCK
S FUNCTION CASE—STOREROOM LOCK

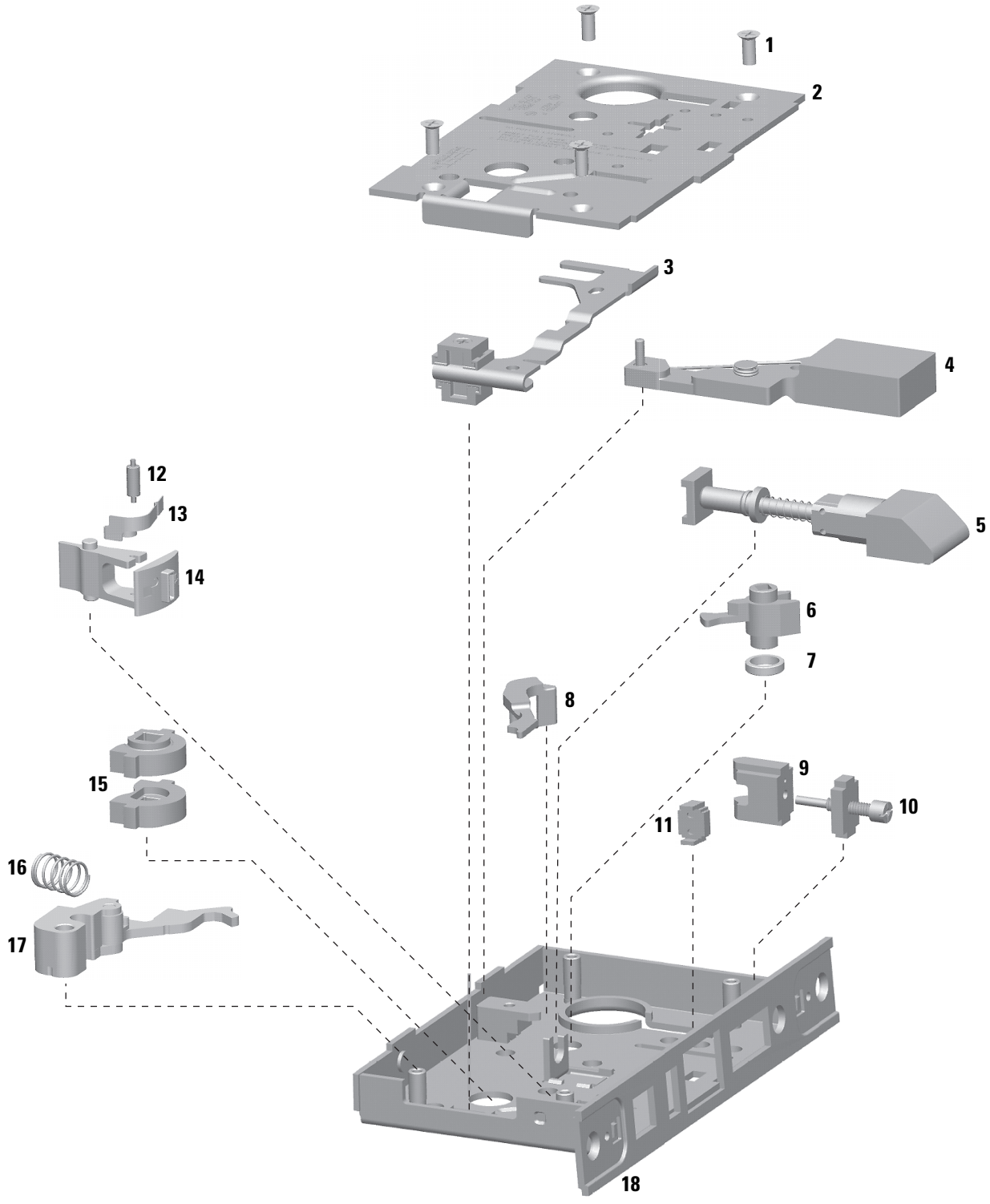


Figure 4.8 BA, S function case exploded diagram

BA, S function case parts list

Refer to Figure 4.8 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44108	1	Turn knob hub (lost motion)
7	A34120	1	Turn knob hub spacer
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	A44188	1	Toggle roller
13	B44190	1	Toggle lever spring
14	C44100	1	Toggle lever
15	C44146	2	Hub
16	A44193	1	Release lever spring
17	C45010	1	Release lever sub-assembly
18	C45000	1	Case sub-assembly

a. For a complete case, use C45517.

BW FUNCTION CASE—ENTRANCE LOCK

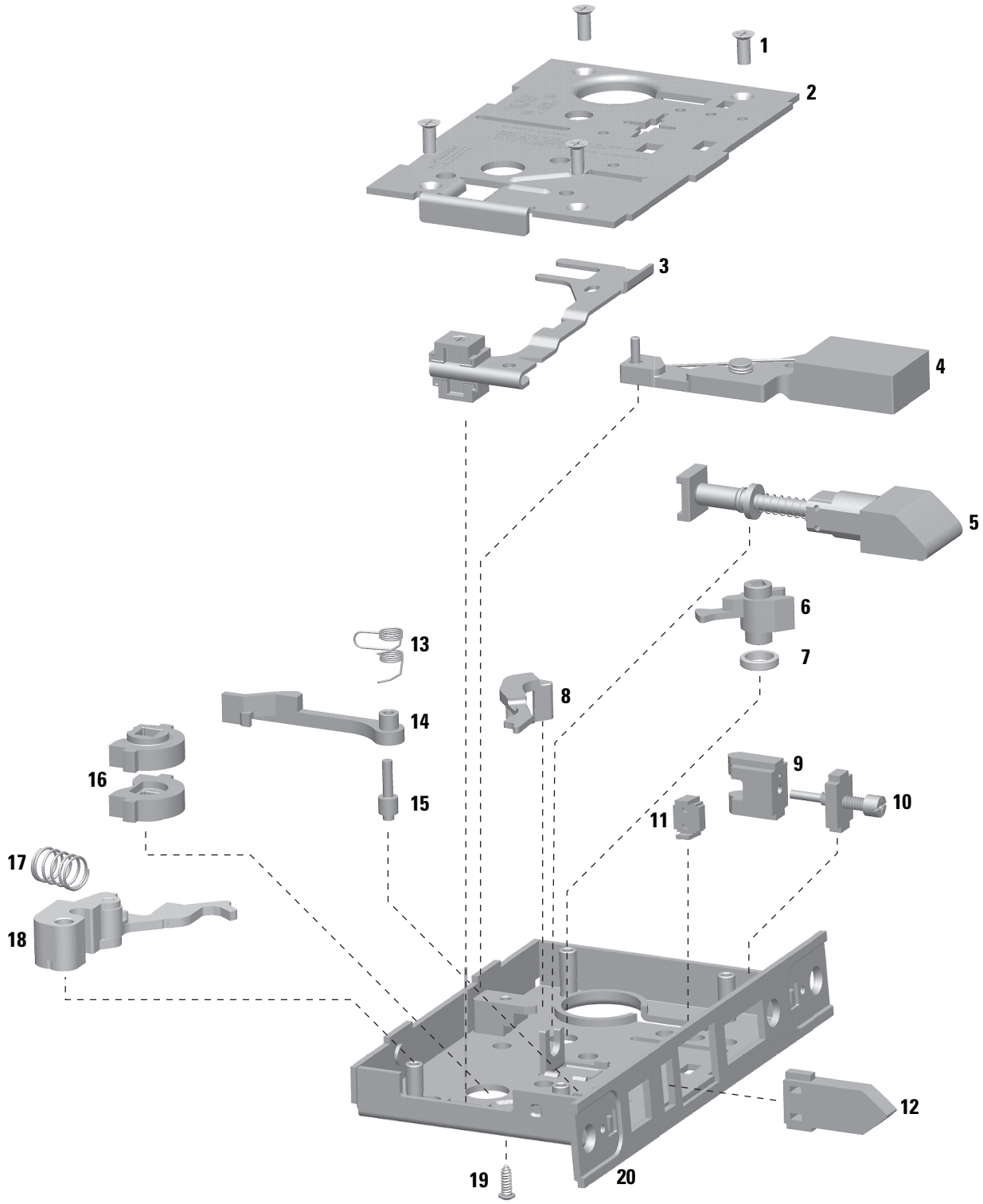


Figure 4.9 BW function case exploded diagram

BW function case parts list

Refer to Figure 4.9 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44108	1	Turn knob hub (lost motion)
7	A34120	1	Turn knob hub spacer
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	C44142	1	Auxiliary bolt
13	B44194	1	Deadlocking lever spring
14	C44148	1	Deadlocking lever
15	A44184	1	Deadlocking lever pin
16	C44146	2	Hub
17	A44193	1	Release lever spring
18	C45010	1	Release lever sub-assembly
19	A44234	1	Self tapping screw
20	C45000	1	Case sub-assembly

a. For a complete case, use C45518.

G FUNCTION CASE—COMMUNICATING LOCK
B5 FUNCTION CASE—ENTRANCE LOCK
B7 FUNCTION CASE—ENTRANCE LOCK

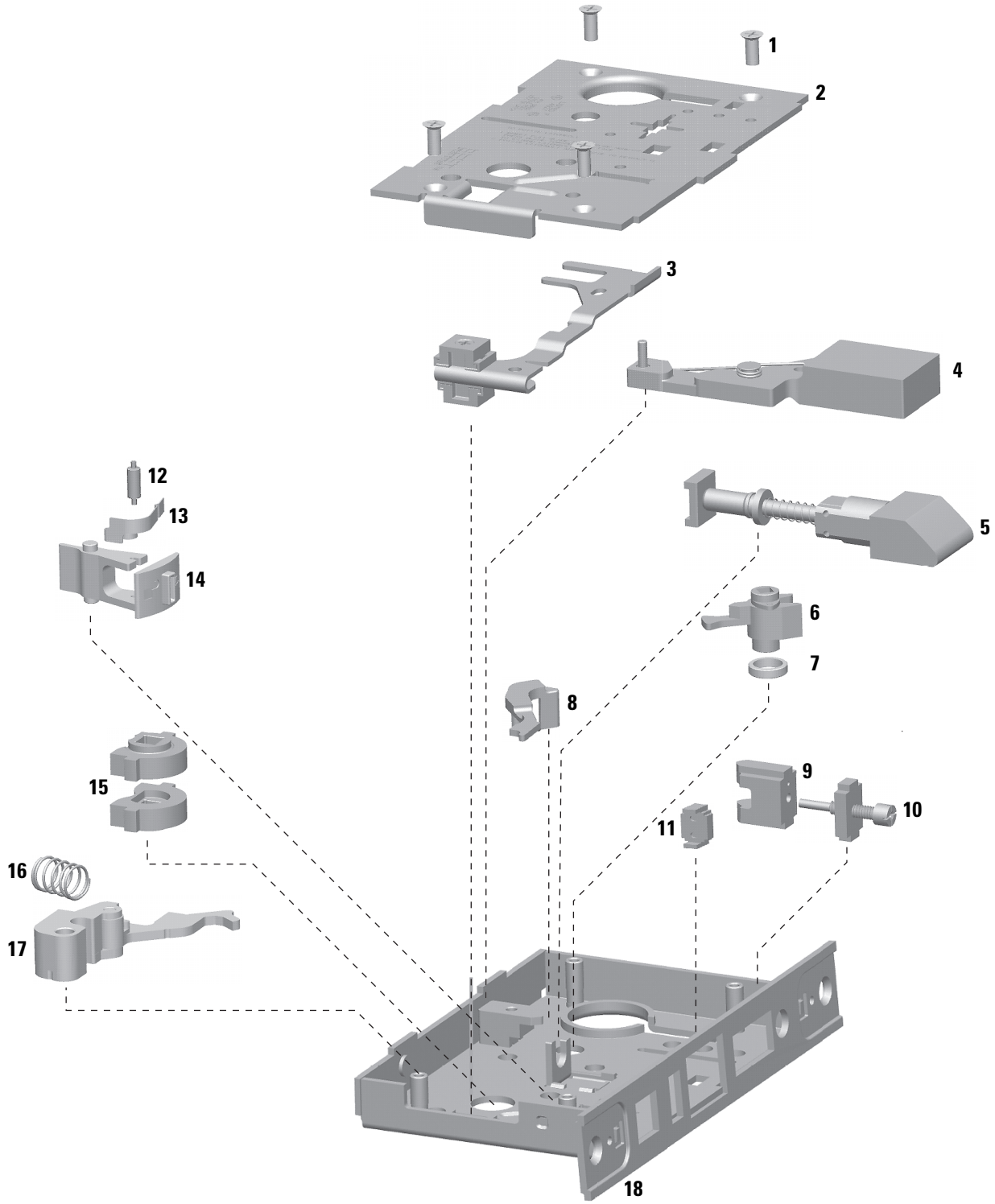


Figure 4.10 G, B5, B7 function case exploded diagram

G, B5, B7, function case parts list

Refer to Figure 4.10 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	A34120	1	Turn knob hub spacer
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	A44188	1	Toggle roller
13	B44190	1	Toggle lever spring
14	C44100	1	Toggle lever
15	C44146	2	Hub
16	A44193	1	Release lever spring
17	C45010	1	Release lever sub-assembly
18	C45000	1	Case sub-assembly

a. For a complete case, use C45508.

HJ FUNCTION CASE—HOTEL LOCK
TD FUNCTION CASE—DORMITORY LOCK

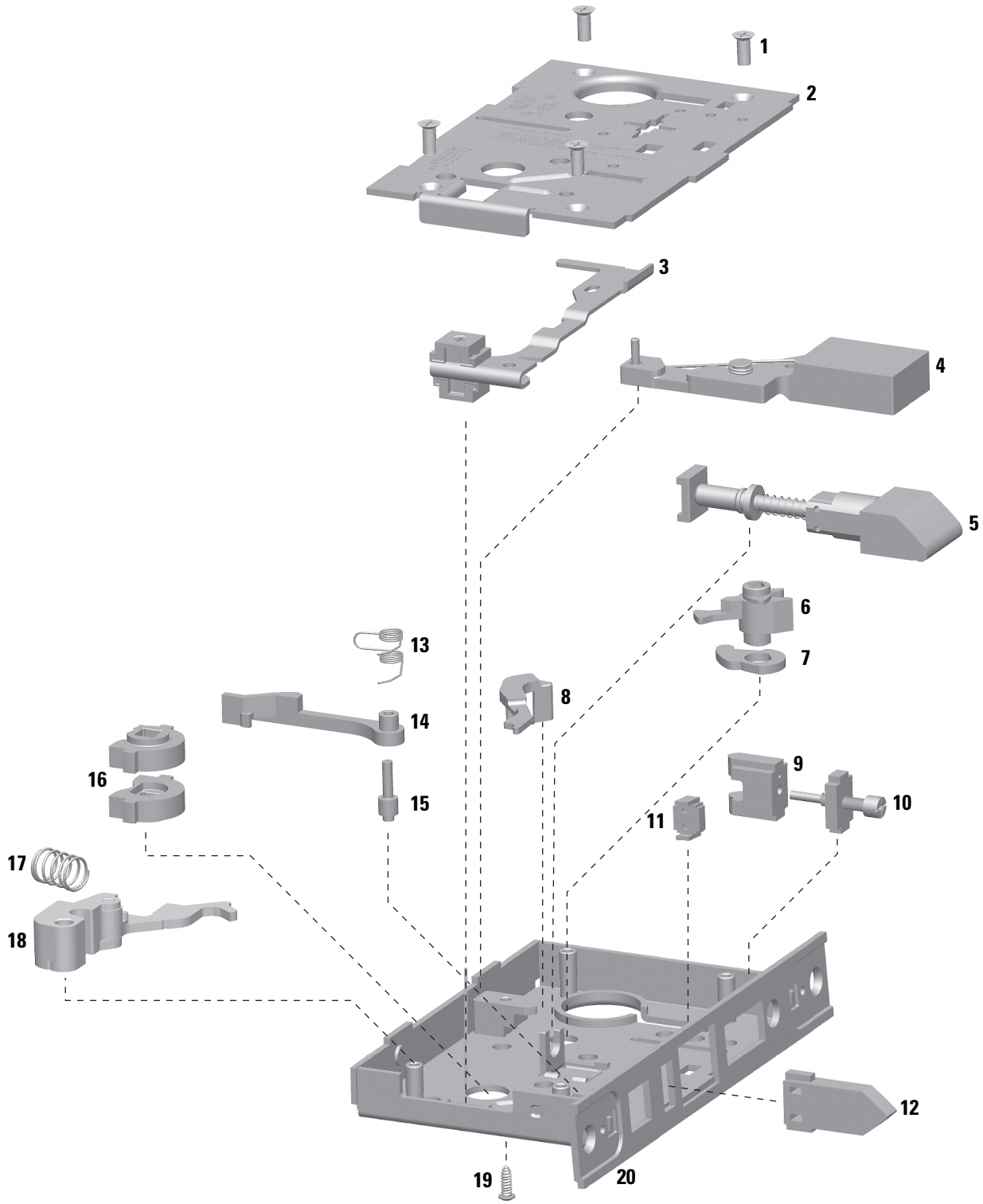


Figure 4.11 HJ, TD function case exploded diagram

HJ, TD function case parts list

Refer to Figure 4.11 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45032	1	“F” Locking lever sub-assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	B34032	1	Turn knob hub cam
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	C44142	1	Auxiliary bolt
13	B44194	1	Deadlocking lever spring
14	C44148	1	Deadlocking lever
15	A44184	1	Deadlocking lever pin
16	C44146	2	Hub
17	A44193	1	Release lever spring
18	C45010	1	Release lever sub-assembly
19	A44234	1	Self tapping screw
20	C45000	1	Case sub-assembly

a. For a complete case, use C45516.

IND FUNCTION CASE—INTRUDER LOCK
T FUNCTION CASE—DORMITORY LOCK

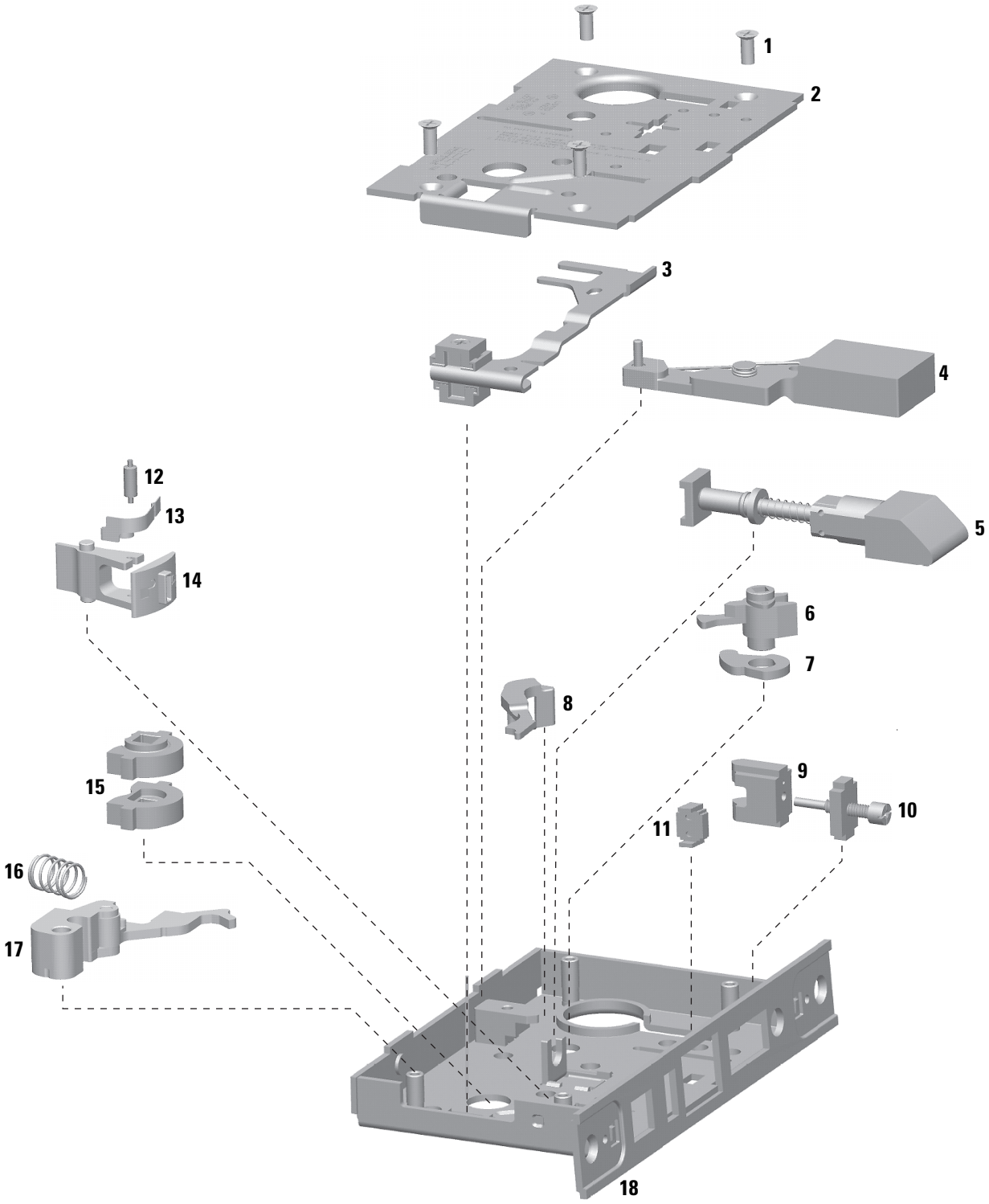


Figure 4.12 IND, T function case exploded diagram

IND, T case parts list

Refer to Figure 4.12 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	B34032	1	Turn knob hub cam
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	A44188	1	Toggle roller
13	B44190	1	Toggle lever spring
14	C44100	1	Toggle lever
15	C44146	2	Hub
16	A44193	1	Release lever spring
17	C45010	1	Release lever sub-assembly
18	C45000	1	Case sub-assembly

a. For a complete case, use C45500.

L FUNCTION CASE—PRIVACY LOCK

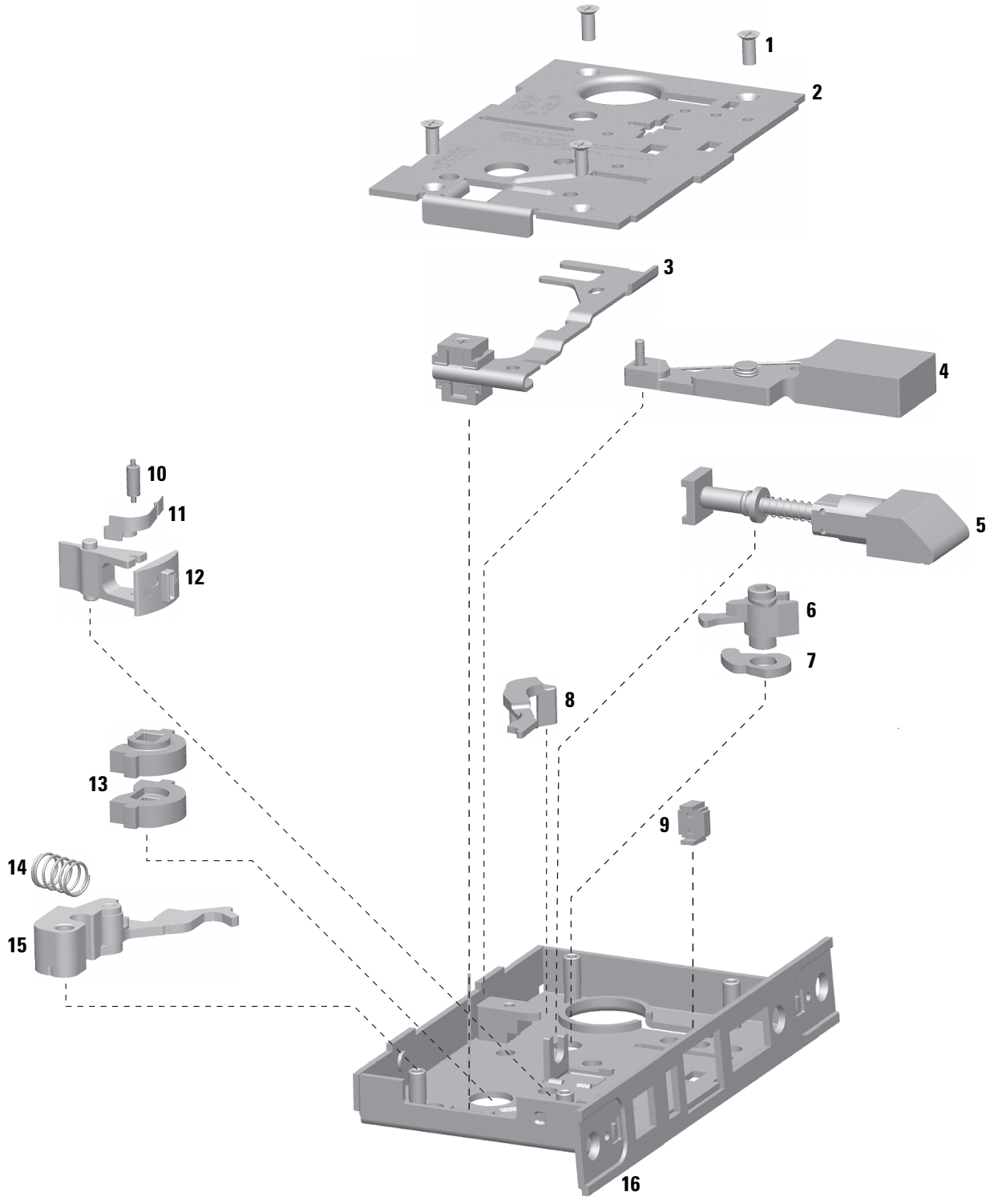


Figure 4.13 L function case exploded diagram

L function case parts list

Refer to Figure 4.13 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	B34032	1	Turn knob hub cam
8	C44110	1	Key release lever
9	B44166	1	Fusible link molded assembly
10	A44188	1	Toggle roller
11	B44190	1	Toggle lever spring
12	C44100	1	Toggle lever
13	C44146	2	Hub
14	A44193	1	Release lever spring
15	C45010	1	Release lever sub-assembly
16	C45000	1	Case sub-assembly

a. For a complete case, use C45509.

LB FUNCTION CASE—PRIVACY LOCK

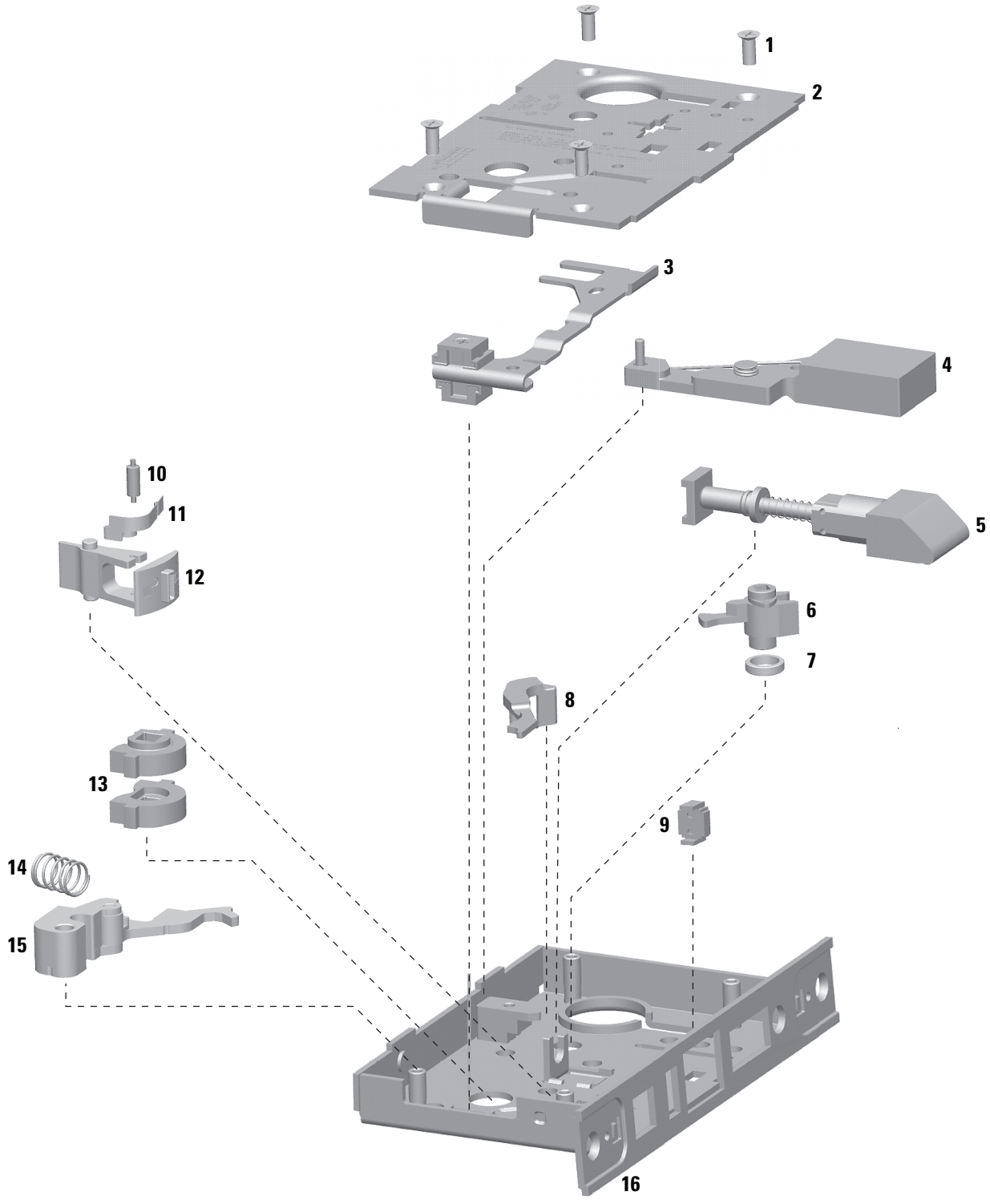


Figure 4.14 LB function case exploded diagram

LB function case parts list

Refer to Figure 4.14 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45030	1	Locking lever and toggle assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	A34120	1	Turn knob hub spacer
8	C44110	1	Key release lever
9	B44166	1	Fusible link molded assembly
10	A44188	1	Toggle roller
11	B44190	1	Toggle lever spring
12	C44100	1	Toggle lever
13	C44146	2	Hub
14	A44193	1	Release lever spring
15	C45010	1	Release lever sub-assembly
16	C45000	1	Case sub-assembly

a. For a complete case, use C45511.

TA FUNCTION CASE—DORMITORY LOCK

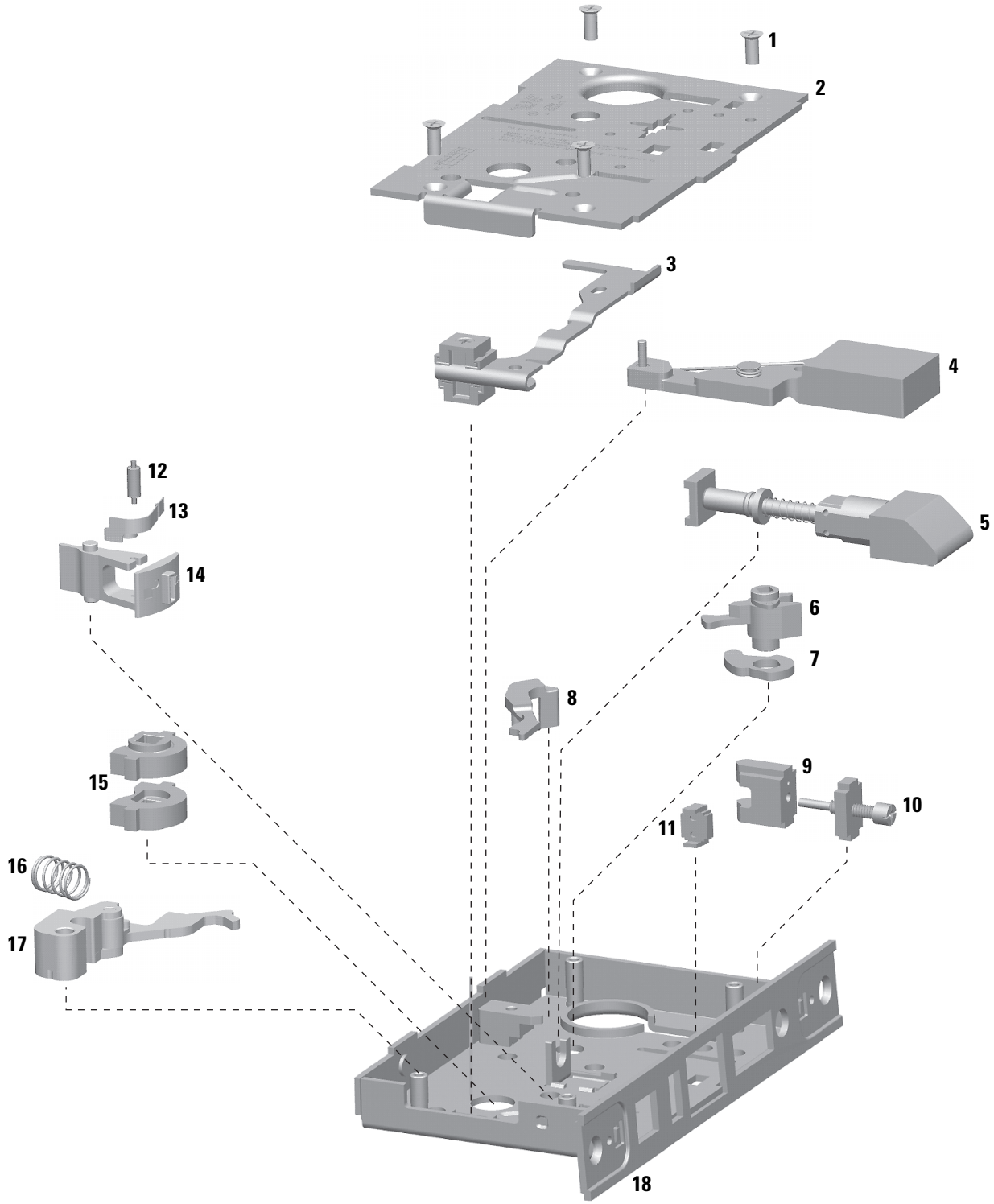


Figure 4.15 TA function case exploded diagram

TA function case parts list

Refer to Figure 4.15 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	C45032	1	"F" Locking lever sub-assembly
4	B45060	1	Deadbolt sub-assembly
5	B45020	1	Latchbolt sub-assembly
6	C44104	1	Turn knob hub (deadbolt)
7	B34032	1	Turn knob hub cam
8	C44110	1	Key release lever
9	C44144	1	Cylinder retainer
10	B45090	1	Cylinder retainer assembly
11	B44166	1	Fusible link molded assembly
12	A44188	1	Toggle roller
13	B44190	1	Toggle lever spring
14	C44100	1	Toggle lever
15	C44146	2	Hub
16	A44193	1	Release lever spring
17	C45010	1	Release lever sub-assembly
18	C45000	1	Case sub-assembly

a. For a complete case, use C45515.

AD FUNCTION CASE—DEADLOCK
WD FUNCTION CASE—DEADLOCK
YD FUNCTION CASE—DEADLOCK

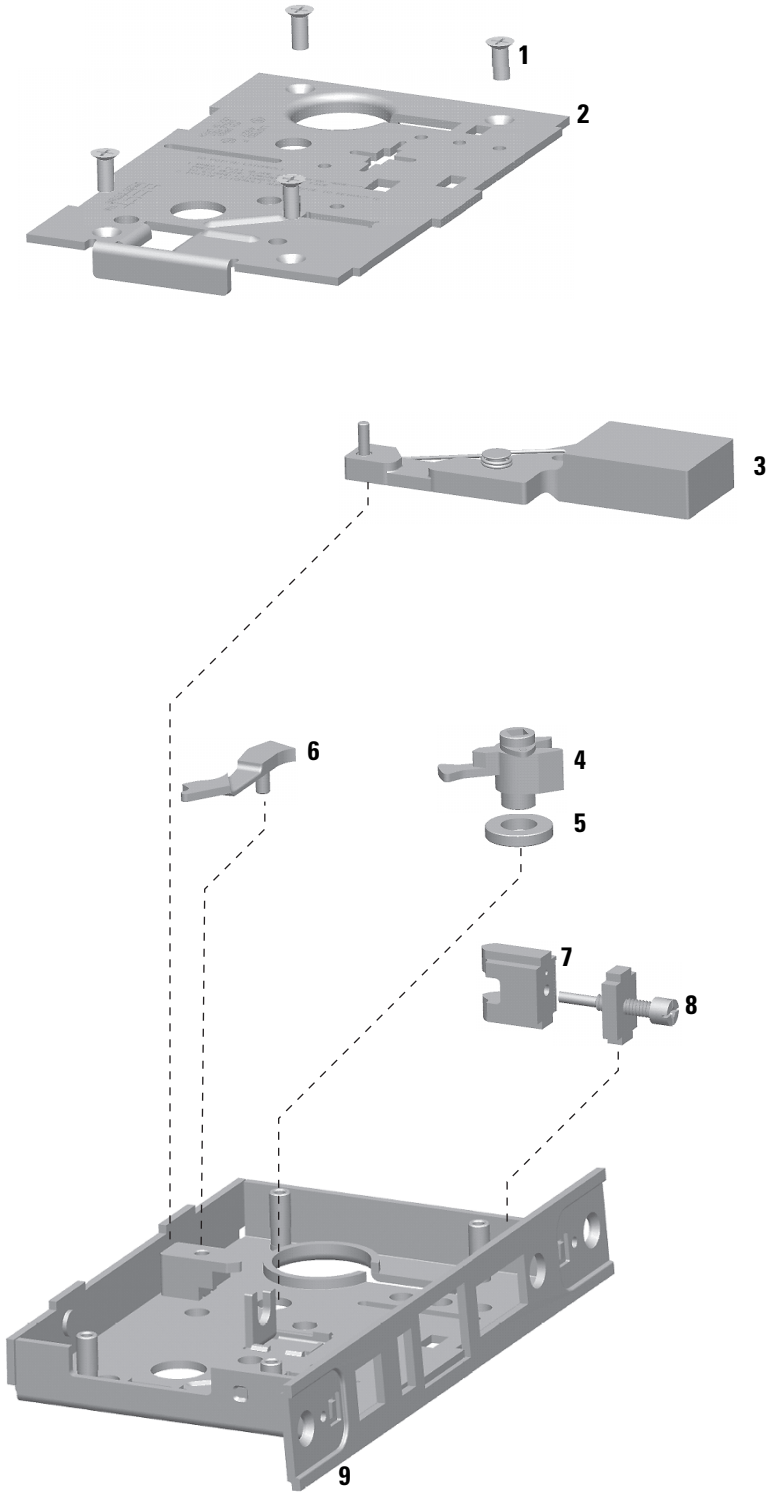


Figure 4.16 AD, WD, YD function case exploded diagram

AD, WD, YD function case parts list

Refer to Figure 4.16 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw
2	D44010	1	Cover
3	B45060	1	Deadbolt sub-assembly
4	C44104	1	Turn knob hub (deadbolt)
5	A34194	1	Spacer for 38/39H
6	C44111	1	Modified key release lever
7	C44144	1	Cylinder retainer
8	B45090	1	Cylinder retainer assembly
9	C45000	1	Case sub-assembly

a. For a complete case, use C45512.

RD FUNCTION CASE—CLASSROOM DEADLOCK

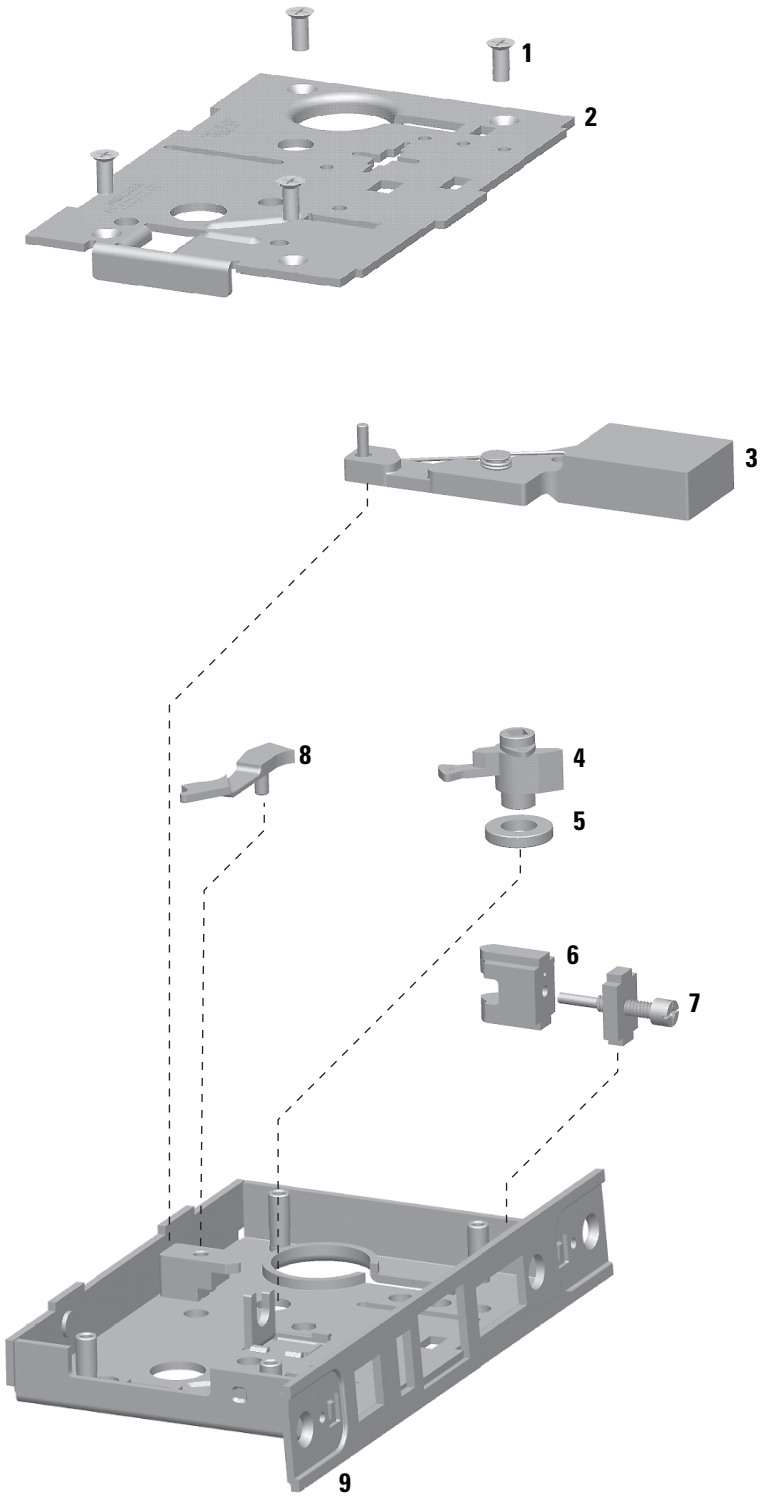


Figure 4.17 RD function case exploded diagram

RD function case parts list

Refer to Figure 4.17 and the table below to find the part you need.

Item	Part No.[a]	Qty.	Description
1	A34087	4	Case cover mounting screw[b]
2	D44010	1	Cover
3	B45060	1	Deadbolt sub-assembly
4	C44107	1	Turn knob hub (deadbolt – machined for RD (RH))
not shown	C44109	1	Turn knob hub (deadbolt – machined for RD (LH))
5	A34194	1	Spacer for 38/39H
6	C44144	1	Cylinder retainer
7	B45090	1	Cylinder retainer assembly
8	C44111	1	Modified key release lever
9	C45000	1	Case sub-assembly

a. For a complete RD (RH) function case, use C45513.
For a complete RD (LH) function case, use C45514.
b. For information to order screws, see page 5–18.

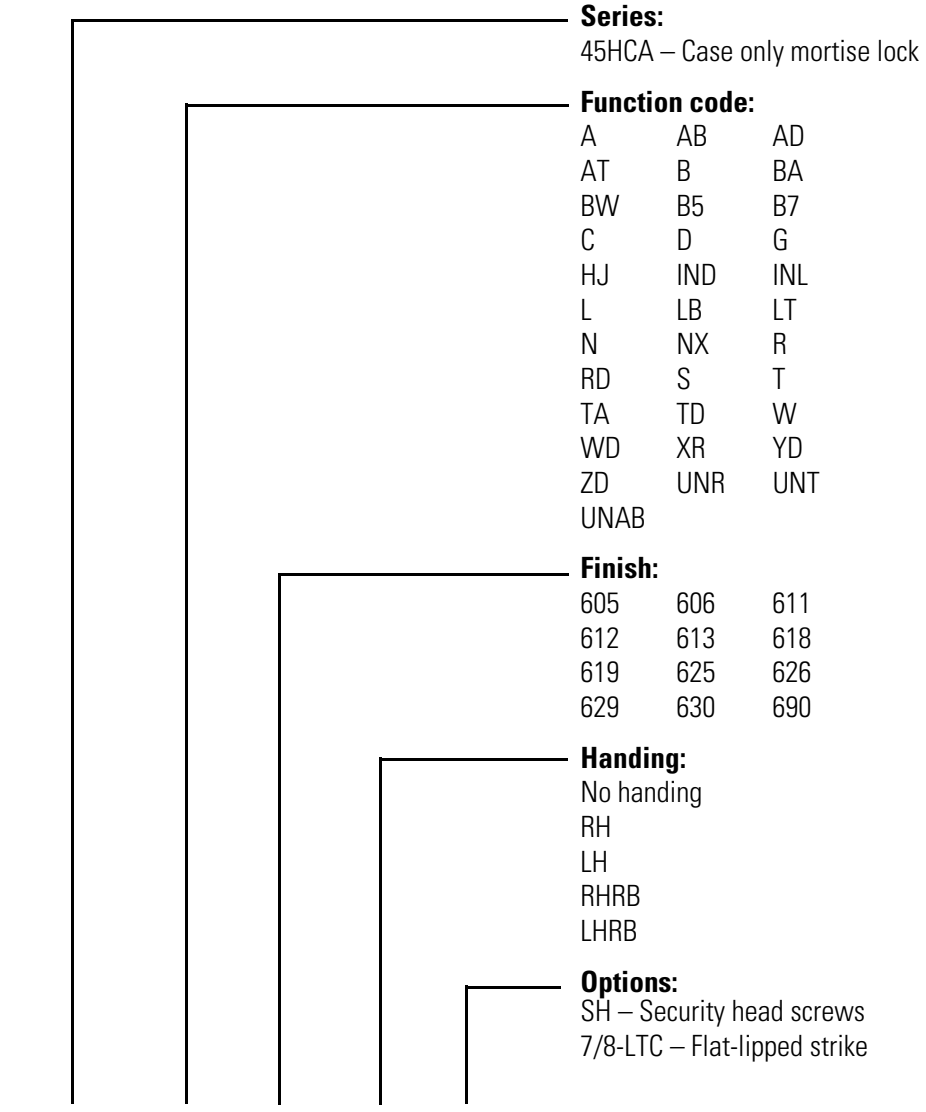
CASE ONLY LOCKS

For most functions, 40H Series Locks can be ordered as complete locks or can be assembled using a "case only" lock, an inside trim kit, and an outside trim kit. A case only lock includes the items not specifically associated with inside or outside trim (lock case, faceplate, strike, strike box, fasteners for case and strike, and installation instructions).

Note: Two faceplates are provided with UNR and UNAB functions.

How to order

To order case only locks, use the nomenclature shown in the example below.



Case only components

The components of case only locks are described in the table below. The figure below shows an example of the components included for each case only lock configuration.

Item	Description	Qty.
1	40H universal strike box	1
2	40H strike[a]	1
3	Strike screw (#12-12 × 3/4″ PHFH)[b]	2
4	Faceplate screw (#8-32 × 1/4″ PHFHMS)[b]	2
5	Faceplate[c]	1
6	Case mounting screw (#12-12 × 3/4″ PHFH)[b]	2
7	Mortise case assembly[d]	1

a. For strike kit information see page 5–11.
b. For information to order screws, see page 5–18.
c. For faceplate kit information, see page 5–15.
d. For part numbers for mortise cases, see the appropriate parts list in this chapter.

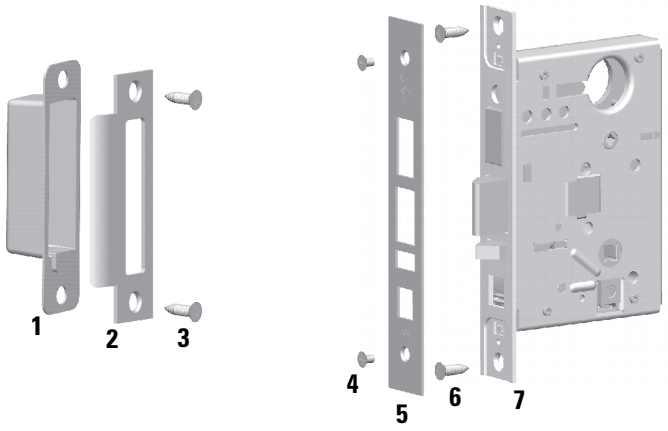


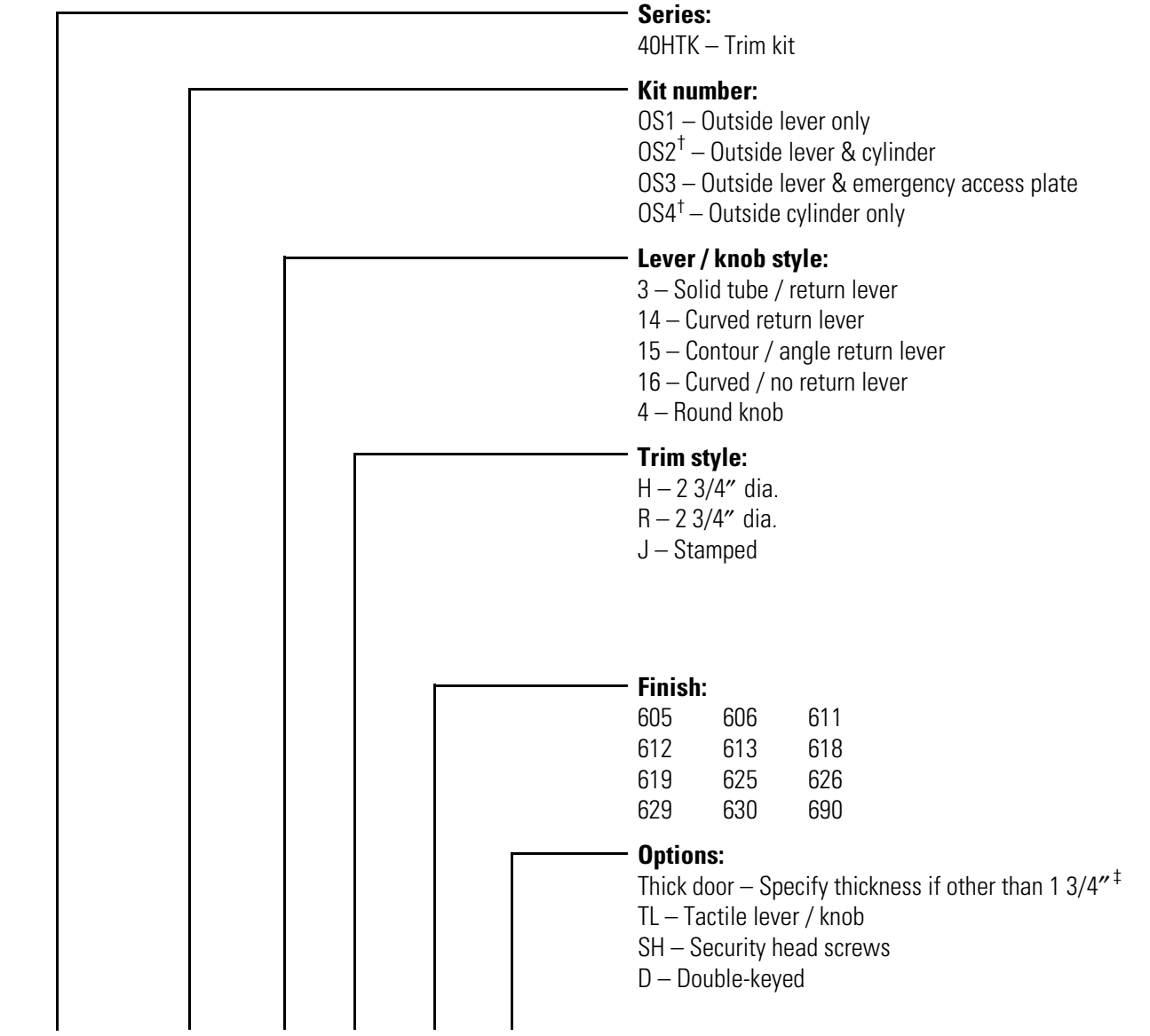
Figure 4.18 Case only lock – faceplate for AB function shown

5 TRIM PARTS

The following pages describe the trim parts available for 45H Locks. Information for how to order trim kits is provided. For information about 48H trim parts, see *Trim parts* on page 7-6.

OUTSIDE TRIM KITS

How to order To order outside trim kits, use the nomenclature shown in the example below.


Series:
40HTK – Trim kit
Kit number:
OS1 – Outside lever only
OS2† – Outside lever & cylinder
OS3 – Outside lever & emergency access plate
OS4† – Outside cylinder only
Lever / knob style:
3 – Solid tube / return lever
14 – Curved return lever
15 – Contour / angle return lever
16 – Curved / no return lever
4 – Round knob
Trim style:
H – 2 3/4″ dia.
R – 2 3/4″ dia.
J – Stamped
Finish:
605 606 611
612 613 618
619 625 626
629 630 690
Options:
Thick door – Specify thickness if other than 1 3/4″‡
TL – Tactile lever / knob
SH – Security head screws
D – Double-keyed
40HTK – OS1 – 14 – H – 626 –

†. By default, OS2 and OS4 include a cylinder ring for single-keyed applications. For double-keyed applications, specify the D option in the nomenclature.

‡. For door thickness information, see the table on the next page.

The table below lists available door thicknesses. If a door's thickness falls between two thicknesses listed below, round up. For doors where the mortise case is not centered in the door, contact your local BEST Representative.

Available door thicknesses	
2″	3 3/4″
2 1/4″	4″
2 1/2″	4 1/4″
2 3/4″	4 1/2″
3″	4 3/4″
3 1/4″	5″
3 1/2″	

Kit components

The components of each outside trim kit are described in the table below. Figure 5.1 through Figure 5.4 show the components included in each outside trim kit. A sectional trim example (H style trim) and an escutcheon trim example (J style trim) are shown for each kit.

		Kit number			
Item	Description	OS1	OS2	OS3	OS4
1	Outside lever and spindle assembly[a]	■	■	■	
2	Rose / escutcheon ring	■	■	■	
3	Rose or outside escutcheon[b]	■	■	■	
4	Outside trim mounting plate[c]	■	■	■	
5	J alignment plate[d]	■	■	■	
6	Trim mounting screw (#8-32 UNC-2A)[e]	2	2	2	
7	J alignment plate mounting screw [d, e]	■	■	■	
8	Cylinder and cam assembly		■		■
9	Wavy washer		■		■
10	Cylinder ring[f]		■		■
not shown	Cylinder set screw (#10-24 × .330″)		■		■
11	Emergency key[g]			■	
12	Emergency rose mounting screw[e] (#6 × 1/2″ POH)			2	
13	Emergency access rose			■	

a. For information to order lever sets, see page 5–13.
b. For part numbers for roses and rose rings, see page 5–23.
For part numbers for outside escutcheons, see page 5–22.
c. To obtain an outside trim mounting plate with a lever spring, use B45081.
To obtain an outside trim mounting plate without a lever spring (used with the #4 knob), use B45080.
d. The J alignment plate (B35466) is included in J trim kits only.
e. For information to order screw kits, see page 5–19.
f. The B45103 cylinder ring for single-keyed functions is shown. Double-keyed functions use B35105.
g. To obtain the sectional trim emergency key kit (rose, mounting screws, and key), use A35150. The outside escutcheon assembly for J trim includes an integrated emergency access rose. To obtain the emergency key only, use A18719.

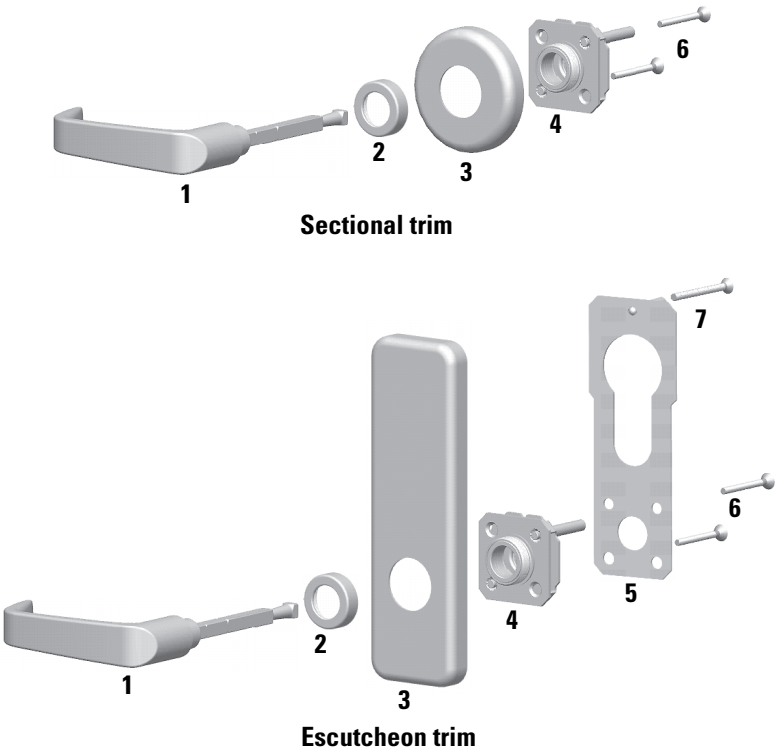


Figure 5.1 OS1 – Outside lever only

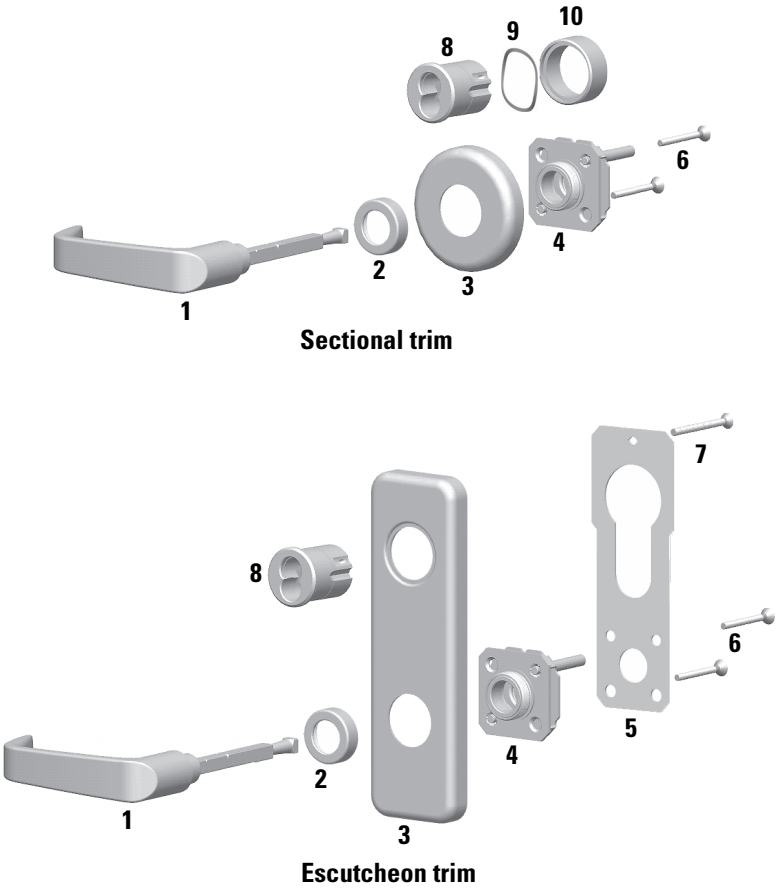


Figure 5.2 OS2 – Outside lever & cylinder

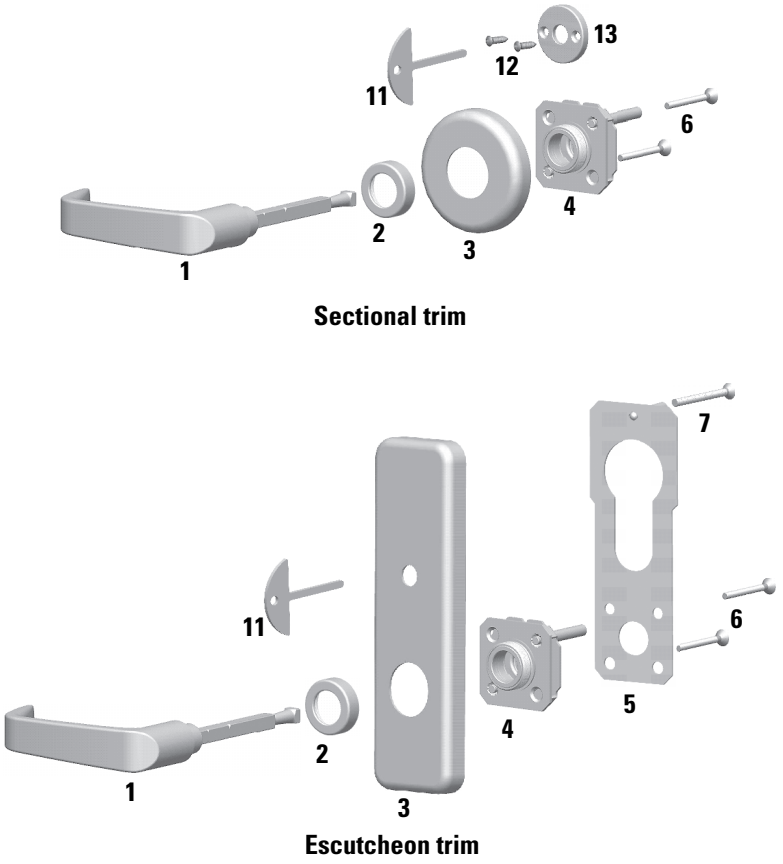


Figure 5.3 OS3 – Outside lever & access plate

Figure 5.4 OS4 – Outside cylinder only

INSIDE TRIM KITS

How to order To order inside trim kits, use the nomenclature shown in the example below.

40HTK – IS1 – 14 – H – 626 –

Series:
40HTK – Trim kit

Kit number:
IS1 – Inside lever only
IS2 – Inside lever & thumb turn
IS3† – Inside lever & cylinder
IS4† – Inside cylinder only
IS5 – Inside thumb turn only

Lever / knob style:
3 – Solid tube / return lever
14 – Curved return lever
15 – Contour / angle return lever
16 – Curved / no return lever
4 – Round knob

Trim style:
H – 2 3/4″ dia.
R – 2 3/4″ dia.
J – Stamped

Finish:

605	606	611
612	613	618
619	625	626
629	630	690

Options:
Thick door – Specify thickness if other than 1 3/4″‡
TL – Tactile lever / knob
SH – Security head screws

†. IS3 and IS4 include the cylinder ring used for double-keyed applications.

‡. For door thickness information, see the table on the next page.

The table below lists available door thicknesses. If a door's thickness falls between two thicknesses listed below, round up. For doors where the mortise case is not centered in the door, contact your local BEST Representative.

Available door thicknesses	
2″	3 3/4″
2 1/4″	4″
2 1/2″	4 1/4″
2 3/4″	4 1/2″
3″	4 3/4″
3 1/4″	5″
3 1/2″	

Kit components

The components of each inside trim kit are described in the table below. Figure 5.5 through Figure 5.9 show the components included in each inside trim kit. A sectional trim example (H style trim) and an escutcheon trim example (J style trim) are shown for each kit.

		Kit number				
Item	Description	IS1	IS2	IS3	IS4	IS5[a]
1	Inside trim mounting plate[b]	■	■	■		
2	Rose or inside escutcheon assembly[c]	■	■	■		
3	Rose / escutcheon ring	■	■	■		
4	Inside lever[d]	■	■	■		
not shown	Socket set screw for lever handle[e]	■	■	■		
5	Thumb turn and rose assembly[f]		■			■
6	Thumb turn mounting screw (#6 × 1/2″ POH)[d]		2			2
7	Cylinder ring[g]			■	■	
8	Wavy washer			■	■	
9	Cylinder and cam assembly			■	■	
not shown	Cylinder set screw (#10-24 × .330″)[e]			■	■	

a. IS5 is available for sectional trim only.
b. To obtain an inside trim mounting plate with a lever spring, use B45071.
To obtain an inside trim mounting plate without a lever spring (used with the #4 knob) use B45070.
c. For part numbers for roses and rose rings, see page 5-23.
For part numbers for inside escutcheons, see page 5-22.
d. For information to order lever sets, see page 5-13.
e. For information to order screw kits, see page 5-19.
f. The inside escutcheon assembly for J trim includes an integrated thumb turn.
g. The cylinder ring provided is for double-keyed applications.

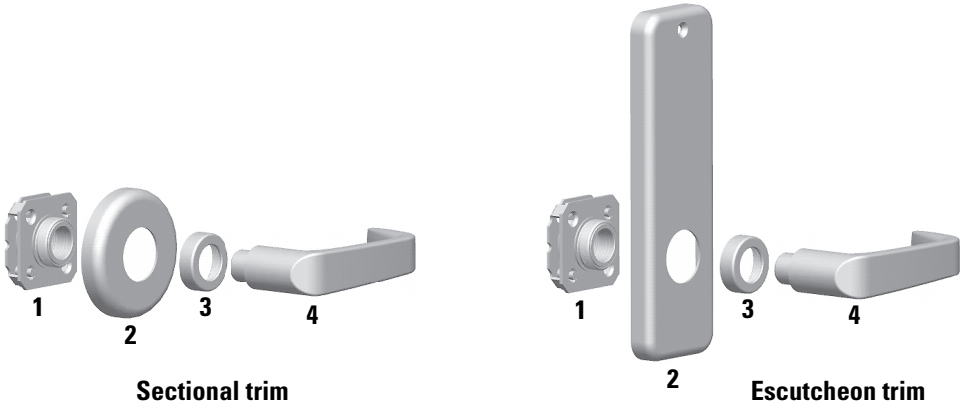


Figure 5.5 IS1 – Inside lever only

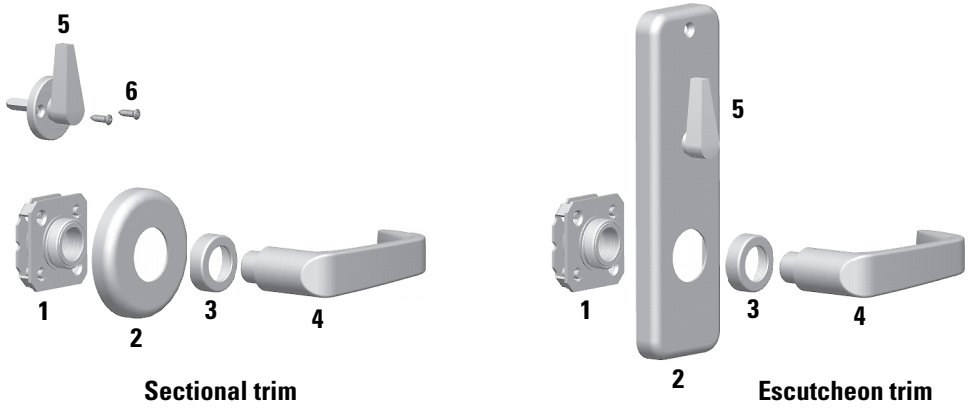


Figure 5.6 IS2 – Inside lever & thumb turn

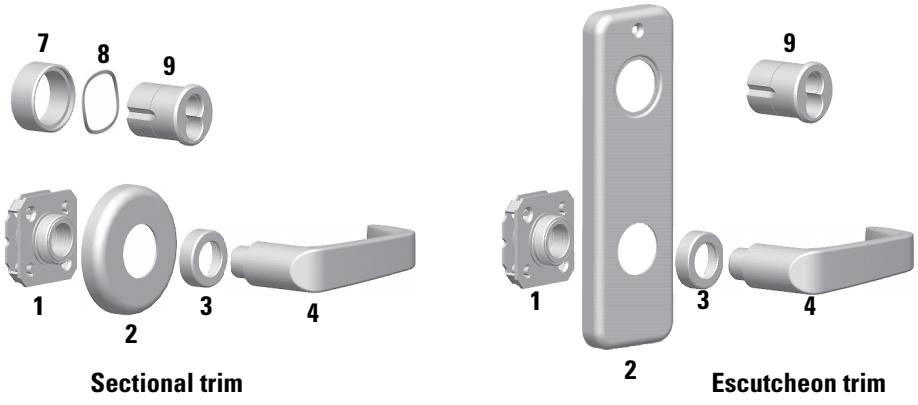
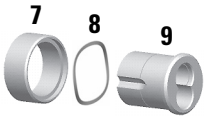
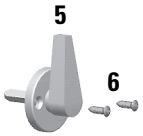


Figure 5.7 IS3 – Inside lever & cylinder



All trim

Figure 5.8 IS4 – Inside cylinder only



Sectional trim

Figure 5.9 IS5 – Inside thumb turn only

STRIKE PACKAGES

How to order To order strike packages, use the nomenclature shown in the example below.

40HST – 1 – 626 – – –

Series:
40HST – Strike package

Kit number:
1 – Universal strike (non-handed)
3R – S3 strike, RH / LHRB
3L – S3 strike, LH / RHRB

Finish:
605 606 611
612 613 618
619 625 626
629 630 690

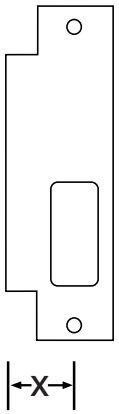
Handing:
No handing
RH
LH
RHRB
LHLB

Options:
SH – Security head screws
Thick door – Specify thickness if other than 1 3/4″ †
7/8-LTC – Flat-lipped strike

†. For door thickness information, see the table below.

The table below lists available door thicknesses (assuming the mortise case is centered in the door) and indicates the lip to center dimension of the corresponding strike.

Door thickness	Lip to center dimension	Nomenclature example
2 1/4″	1.424″	40HST – 3R – 626 – RH – 2 1/4
2 1/2″	1.549″	40HST – 3R – 626 – RH – 2 1/2
2 3/4″	1.674″	40HST – 3R – 626 – RH – 2 3/4
3″	1.799″	40HST – 3R – 626 – RH – 3
3 1/4″	1.924″	40HST – 3R – 626 – RH – 3 1/4
3 1/2″	2.049″	40HST – 3R – 626 – RH – 3 1/2
3 3/4″	2.174″	40HST – 3R – 626 – RH – 3 3/4
4″	2.299″	40HST – 3R – 626 – RH – 4
4 1/4″	2.424″	40HST – 3R – 626 – RH – 4 1/4
4 1/2″	2.549″	40HST – 3R – 626 – RH – 4 1/2
4 3/4″	2.674″	40HST – 3R – 626 – RH – 4 3/4
5″	2.799″	40HST – 3R – 626 – RH – 5



Lip to center dimension—taken from the edge of the lip to the center of the screw holes

Figure 5.10 Lip to center dimension

Strike packages

The components of each strike package are described in the table below. Figure 5.11 through Figure 5.14 show the components included in each strike package.

Item	Description	Kit number 1	3R	3L
1	Standard strike box	■		
2	40HS1 Standard strike	■		
3	Strike screw (#12–12 × 3/4″ PHFH)[a]	2	2	2
4	40HS3 RH/LHRB strike		■	
5	40HS3 LH/RHRB strike			■

a. For information to order screw kits, see page 5-19.

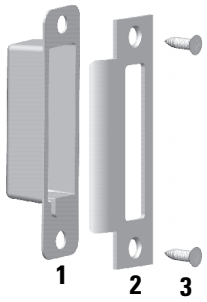


Figure 5.11 Strike kit 1– Standard strike package

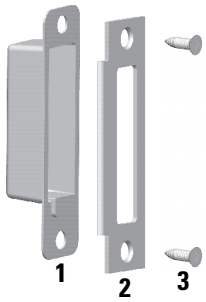


Figure 5.12 Strike kit 1– Standard strike package with flat-lipped option

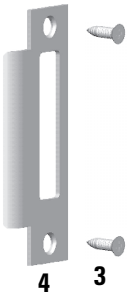
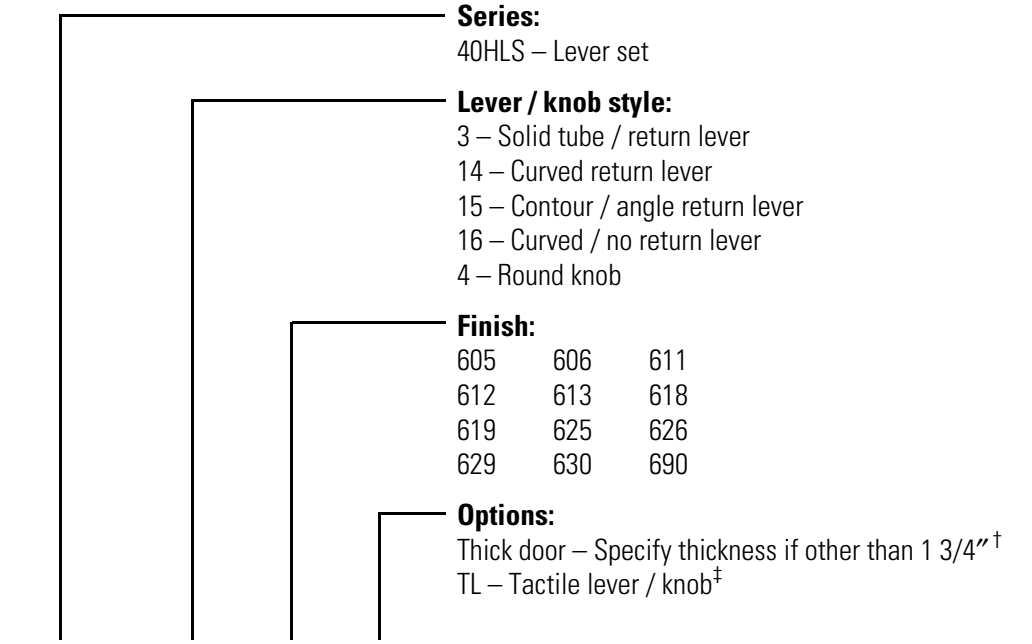


Figure 5.13 Strike kit 3R – RH / LHRB strike package

Figure 5.14 Strike kit 3L – LH / RHRB strike package

LEVER SETS

How to order To order lever sets, use the nomenclature shown in the example below.


Series:
40HLS – Lever set
Lever / knob style:
3 – Solid tube / return lever
14 – Curved return lever
15 – Contour / angle return lever
16 – Curved / no return lever
4 – Round knob
Finish:
605 606 611
612 613 618
619 625 626
629 630 690
Options:
Thick door – Specify thickness if other than 1 3/4″ †
TL – Tactile lever / knob‡
40HLS – 14 – 626 –

†. For door thickness information, see the table below.

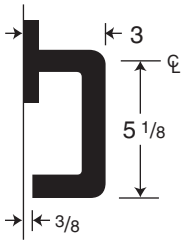
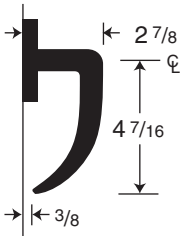
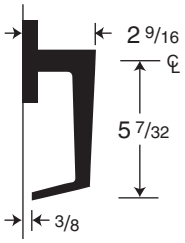
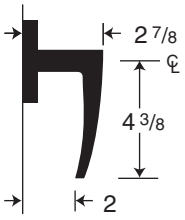
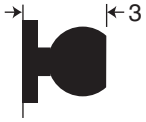
‡. The method for achieving a tactile lever can vary depending on lever style and finish.

The table below lists available door thicknesses. If a door's thickness falls between two thicknesses listed below, round up. For doors where the mortise case is not centered in the door, contact your local BEST Representative.

Available door thicknesses	
2″	3 3/4″
2 1/4″	4″
2 1/2″	4 1/4″
2 3/4″	4 1/2″
3″	4 3/4″
3 1/4″	5″
3 1/2″	

Lever sets

The components of each lever set are described in the table below. Figure 5.15 through Figure 5.19 show the components included in each lever set.

Style		Item	Description	Part number Standard	Part number Tactile
3			Solid tube lever set		
		1	Outside lever and spindle assembly	B45120	B45121
		2	Inside lever	B45110	B44306
		not shown	Socket set screw for lever handle[a]		
14			Curved return lever set		
		1	Outside lever and spindle assembly	B45140	B45141
		2	Inside lever	B45130	B45131
		not shown	Socket set screw for lever handle[a]		
15			Contour / angle return lever set		
		1	Outside lever and spindle assembly	B45160	B45161
		2	Inside lever	B45150	B45151
		not shown	Socket set screw for lever handle[a]		
16			Curve / no return lever set		
		1	Outside lever and spindle assembly	B45182	B45183
		2	Inside lever	B45172	B45173
		not shown	Socket set screw for lever handle[a]		
4			Knob set		
		1	Outside knob and spindle assembly	B45180	B45181
		2	Inside knob	B45170	B45171
		not shown	Socket set screw for lever handle[a]		

a. For information to order screw kits, see page 5–19.

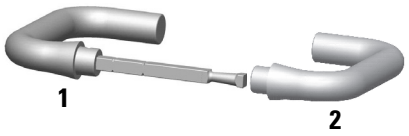


Figure 5.15 Solid tube

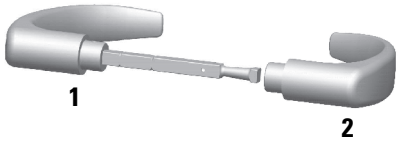


Figure 5.16 Curved return

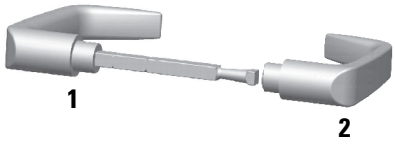


Figure 5.17 Contour/angle return

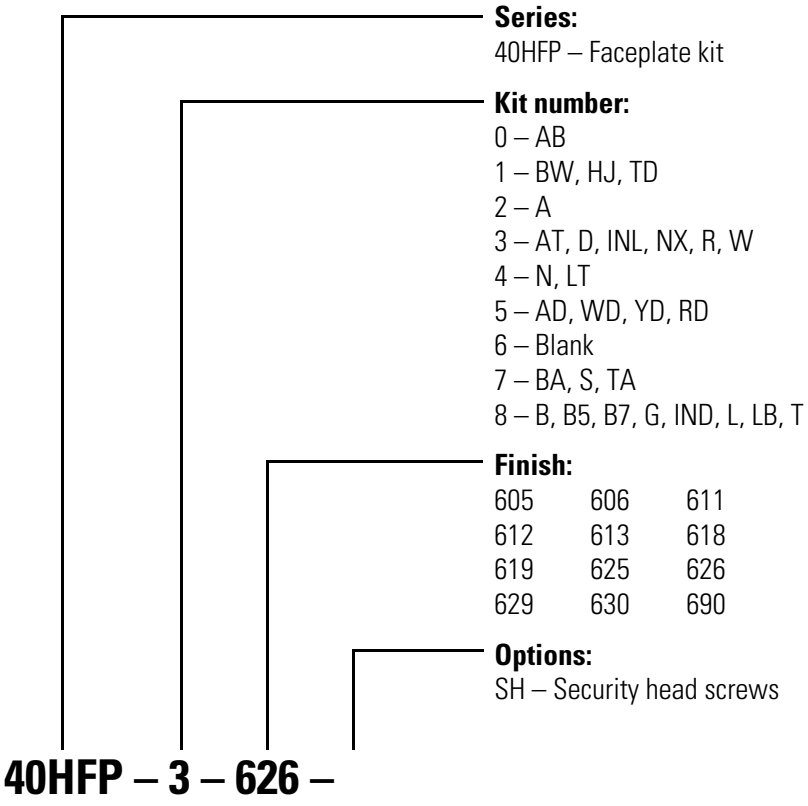
Figure 5.18 Curve / no return

Figure 5.19 Knob

FACEPLATE KITS

How to order

To order faceplate trim kits, use the nomenclature shown in the example below.


Series:
40HFP – Faceplate kit
Kit number:
0 – AB
1 – BW, HJ, TD
2 – A
3 – AT, D, INL, NX, R, W
4 – N, LT
5 – AD, WD, YD, RD
6 – Blank
7 – BA, S, TA
8 – B, B5, B7, G, IND, L, LB, T
Finish:
605 606 611
612 613 618
619 625 626
629 630 690
Options:
SH – Security head screws
40HFP – 3 – 626 –

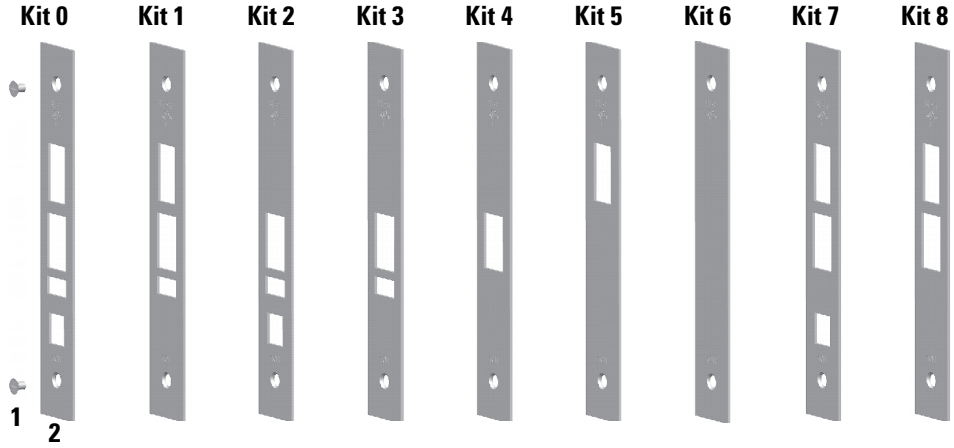


Figure 5.20 Faceplate kits

Faceplate kits

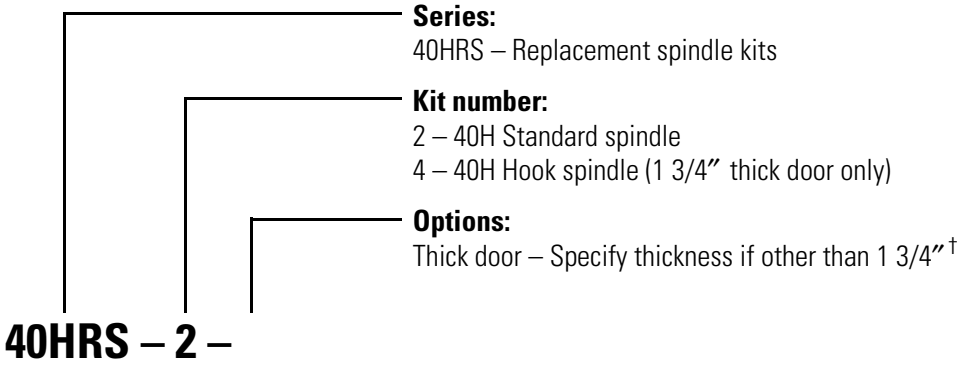
All faceplate kits contain the components listed in the table below. Figure 5.20 shows the faceplate for each kit.

Item	Description	Qty.
1	Faceplate screw (#8-32 × 1/4″ PHFHMS)[a]	2
2	Faceplate	1

a. For information to order screw kits, see page 5–19.

REPLACEMENT SPINDLES

How to order To order replacement spindles, use the nomenclature shown in the example below.


Series:
40HRS – Replacement spindle kits
Kit number:
2 – 40H Standard spindle
4 – 40H Hook spindle (1 3/4″ thick door only)
Options:
Thick door – Specify thickness if other than 1 3/4″ †
40HRS – 2 –

†. For door thickness information, see the table below.

The table below lists available door thicknesses. If a door's thickness falls between two thicknesses listed below, round up. For doors where the mortise case is not centered in the door, contact your local BEST Representative.

Available door thicknesses	
2″	3 3/4″
2 1/4″	4″
2 1/2″	4 1/4″
2 3/4″	4 1/2″
3″	4 3/4″
3 1/4″	5″
3 1/2″	

Replacement spindles

The components of each replacement spindle kit are described in the table below. Figure 5.20 shows each replacement spindle.

		Kit number	
Item	Description	2 (Standard)	4 (Hook)
1	Inside spindle	■	
2	Outside spindle	■	
3	Spring pin (1/8 × 5/8″)	■	
not shown	Socket set screw for lever handle[a]	■	
not shown	Allen wrench (1/8″)[b]	■	
4	Lower hook spindle		■
5	Pin (1/8 × 0.215″)		■
6	Upper hook spindle		■

a. For information to order screw kits, see page 5–19.
b. For information to order an allen wrench, see page 5–24

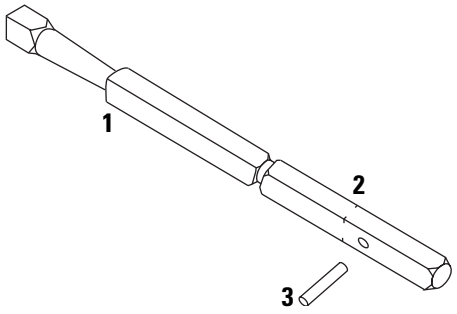


Figure 5.21 Spindle kit 2 – Standard replacement spindle

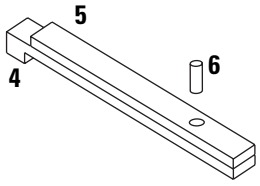
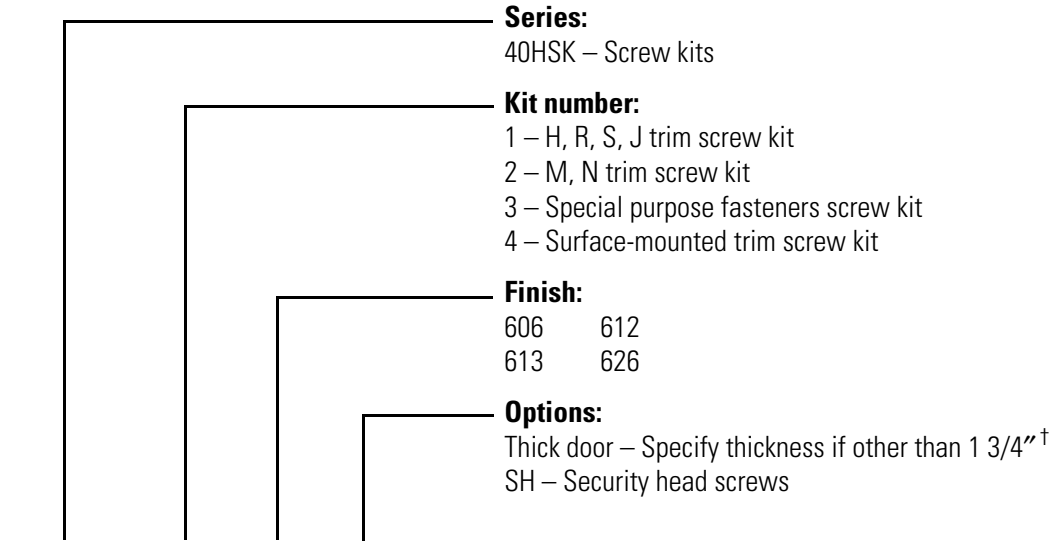


Figure 5.22 Spindle kit 4 – Hook replacement spindle

SCREW KITS

How to order To order screw kits, use the nomenclature shown in the example below.


Series:
40HSK – Screw kits
Kit number:
1 – H, R, S, J trim screw kit
2 – M, N trim screw kit
3 – Special purpose fasteners screw kit
4 – Surface-mounted trim screw kit
Finish:
606 612
613 626
Options:
Thick door – Specify thickness if other than 1 3/4″ †
SH – Security head screws
40HSK – 1 – 626 –

†. For door thickness information, see the table below.

The table below lists available door thicknesses. If a door's thickness falls between two thicknesses listed below, round up. For doors where the mortise case is not centered in the door, contact your local BEST Representative.

Available door thicknesses	
2″	3 3/4″
2 1/4″	4″
2 1/2″	4 1/4″
2 3/4″	4 1/2″
3″	4 3/4″
3 1/4″	5″
3 1/2″	

Screw kits

The components of screw kits are described in the table below. Figure 5.23 shows the components included in each screw kit.

Item	Description	Kit number 1	2	3	4
1	Faceplate screw (#8-32 × 1/4″ PHFHMS)[a]	2	2		
2	Strike screw / case mounting screw (#12-12 × 3/4″ PHFH)[b]	4	4		
3	Trim mounting screw (#8-32 UNC-2A)[c]	2	2		
4	J alignment plate mounting screw (#8-32 × 1.75″ UNC-2A POHMS)[a, c]	■			
5	Thumb turn mounting / emergency access plate screw (#6 × 1/2″ POH)	2			
6	M/N escutcheon screw (#10-32 × 2 1/8″)[b, c]		2		
7	Shuttle guide pin			2	
8	Hub toggle screw			2	
9	Self tapping screw (TD, HJ, BW functions)			■	
10	Socket set screw for lever handle[d]			■	
11	Upper J escutcheon screw (#6 × 5/8″ POH surface mounting)				■
12	Single dummy trim mounting screw (#8 × 1″ PFH surface mounting)				2

a. Security head option accepts T15 bit.
b. Security head option accepts T25 bit.
c. When the thick door option is selected, a longer screw is provided.
d. Security head option accepts spanner head bit.

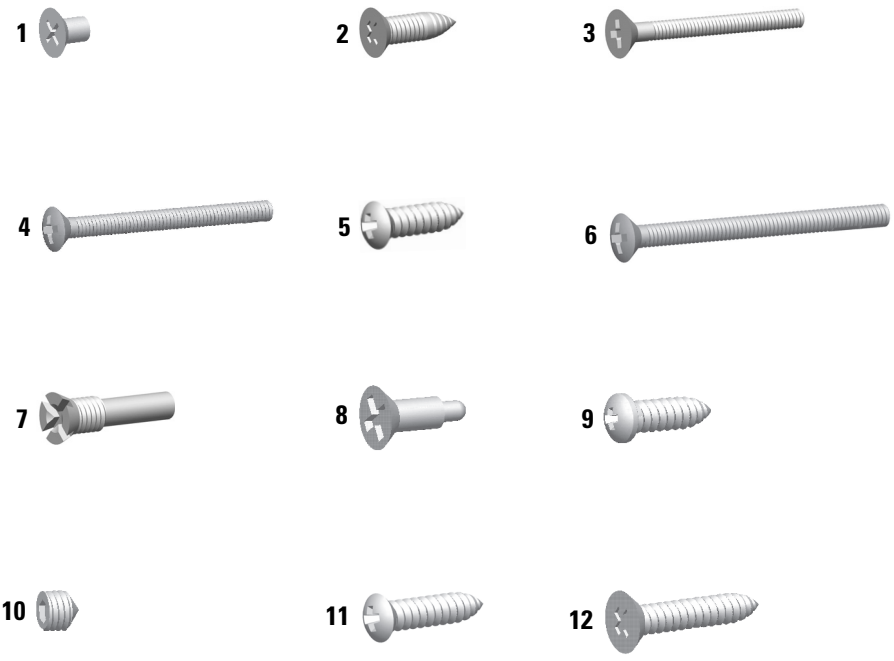


Figure 5.23 Screw kit components

CYLINDERS AND CAMS

How to order To order a cylinder and cam assembly and cylinder ring for a 40H Series Lock, use the nomenclature shown in the example below.

Series:
1E74 – Standard mortise cylinder
1EG7G4 – Hotel mortise cylinder (1E7G4)

Cylinder length:†
– Standard

22 – 1 3/8″	32 – 2″	48 – 3″
24 – 1 1/2″	34 – 2 1/8″	56 – 3 1/2″
26 – 1 5/8″	36 – 2 1/4″	64 – 4″
28 – 1 3/4″	40 – 2 1/2″	72 – 4 1/2″
30 – 1 7/8″	44 – 2 3/4″	80 – 5″

Cam:
C258 – Standard mortise cam‡

Ring:
B35103 – Single cylinder ring assembly (H or R trim)
B35105 – Double cylinder ring assembly (H or R trim)

Finish:

605	606	611
612	613	618
619	625	626
629	630	690

1E74 – 24 – C258 – B35103 – 626

†. For 1E74 cylinders, specify the cylinder length (measured from the back of the cylinder head to the end of the cylinder body).
For 1E7G4 thick door applications, refer to the table on the next page and order the appropriate part number.

‡. All functions use the standard cam. The turn knob cylinder for the RD function (classroom deadbolt) has specialized components and must be ordered with the lock.

Cylinders by door thickness

The table below lists cylinders by door thicknesses. If a door's thickness falls between two thicknesses listed below, round up. For doors where the mortise case is not centered in the door, contact your local BEST Representative

Door thickness	Standard cylinder	Hotel cylinder
2″	B35170	B35200
2 1/4″	B35171	B35201
2 1/2″	B35172	B35202
2 3/4″	B35173	B35203
3″	B35174	B35204
3 1/4″	B35175	B35205
3 1/2″	B35176	B35206
3 3/4″	B35177	B35207
4″	B35178	B35208
4 1/4″	B35179	B35209
4 1/2″	B35180	B35210
4 3/4″	B35181	B35211
5″	B35182	B35212

Cylinder ring lengths

Ring part no.	Length (decimal)
B35100	7/32″ (.219)
B35101	11/32″ (.344)
B35102	13/32″ (.406)
B35103	7/16″ (.438)
B35104	9/16″ (.562)
B35105	19/32″ (.594)
B35106	21/32″ (.656)
B35107	23/32″ (.719)
B35108	13/16″ (.812)
B35109	5/16″ (.312)

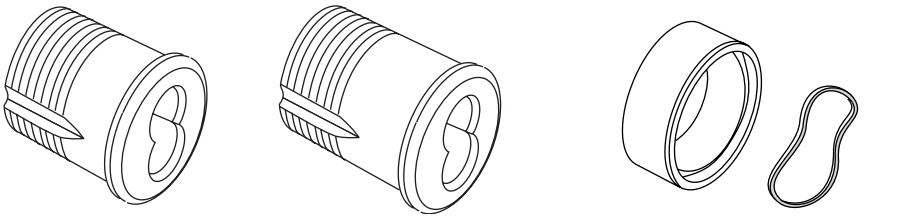


Figure 5.24 Cylinders and rings

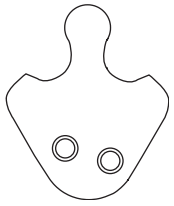


Figure 5.25 Standard cylinder cam

ESCUTCHEON ASSEMBLIES

J trim outside escutcheons

J trim outside escutcheon assemblies are described in the table and figures below.

Item	Description	Part number
1	Outside escutcheon for functions N, NX	C44091
2	Outside escutcheon for functions A, AB, AT, B, BA, BW, B5, B7, D, G, HJ, IND, INL, R, S, T, TA, TD, W	C44092
3	Outside escutcheon for functions L, LB, LT	C44093

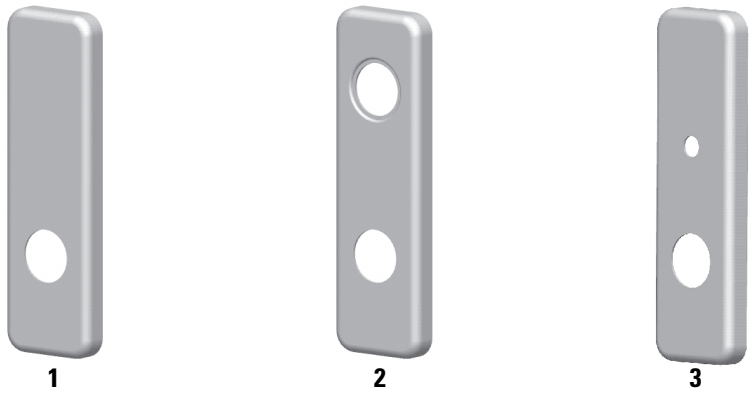


Figure 5.26 Outside J trim escutcheons

J trim inside escutcheons

J trim inside escutcheon assemblies are described in the table and figures below.

Item	Description	Part number
1	Inside escutcheon for functions A, B5, D, N, NX, R	D44081
2	Inside escutcheon and turn knob assembly for functions AB, AT, B, BA, BW, HJ, L, LB, LT, T, TA, TD	B45200
3	Inside escutcheon for functions B7, G, IND, INL, S, W	D44082

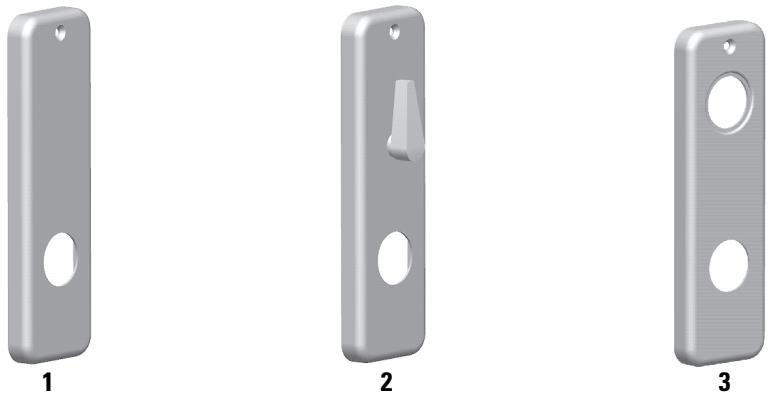


Figure 5.27 Inside J trim escutcheons

ROSES AND ROSE RINGS

Rose and rose ring components are described in the table and figure below.

Item	Description	Part number	
		Rose	Ring
1	H trim	A44070	B44182
2	R trim	A44074	B44182

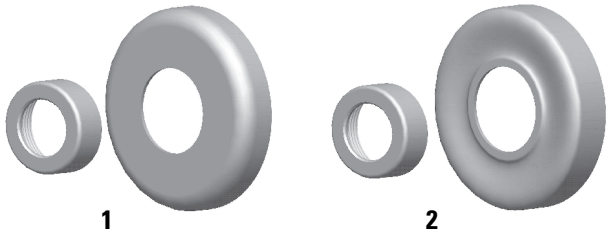


Figure 5.28 Roses & rose rings

DUMMY TRIM

Dummy trim parts are described in the table and figures below.

Item	Description	Part number	1DT	2DT
1	Outside trim mounting plate	B35027		■
2	Dummy trim assembly	A45050	■	2
3	Inside trim mounting plate	A35028	■	■
4	40H Trim cassette mounting screw (for 1 3/4″ to 2 1/4″ thick doors)	A44215		2
5	Single dummy trim mounting screw (#8 × 1″ PFH surface mounting)[a]	A39217	2	

a. For information to order screw kits, see page 5–19.

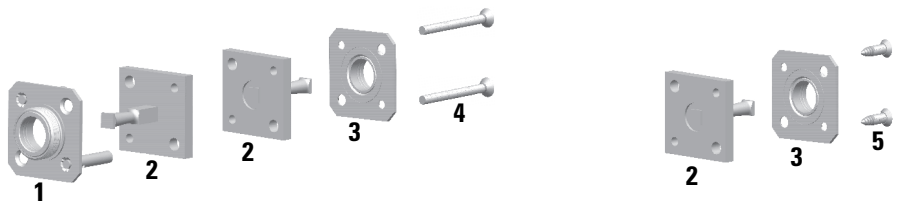


Figure 5.29 Dummy trim parts

SERVICE EQUIPMENT

Tools for use with 40H Series Locks are described in the table and figure below.

Item	Nomen-clature	Description	Used for
1	ED212	Mortise cylinder cam assembly tool	Tool for assembling cams to mortise cylinders
2	ED211	Cylinder wrench	Tool for installing, removing, and testing cylinders
3	KD316	Spanner wrench	Tool for installing sectional trim
4	1233659	Allen wrench (1/8″)	Tool for installing and removing the inside lever
5	ED225	Cylinder tap	Tool for rethreading case threads
6	ED221	Cylinder die	Tool for rethreading 1 5/32″ diameter cylinders

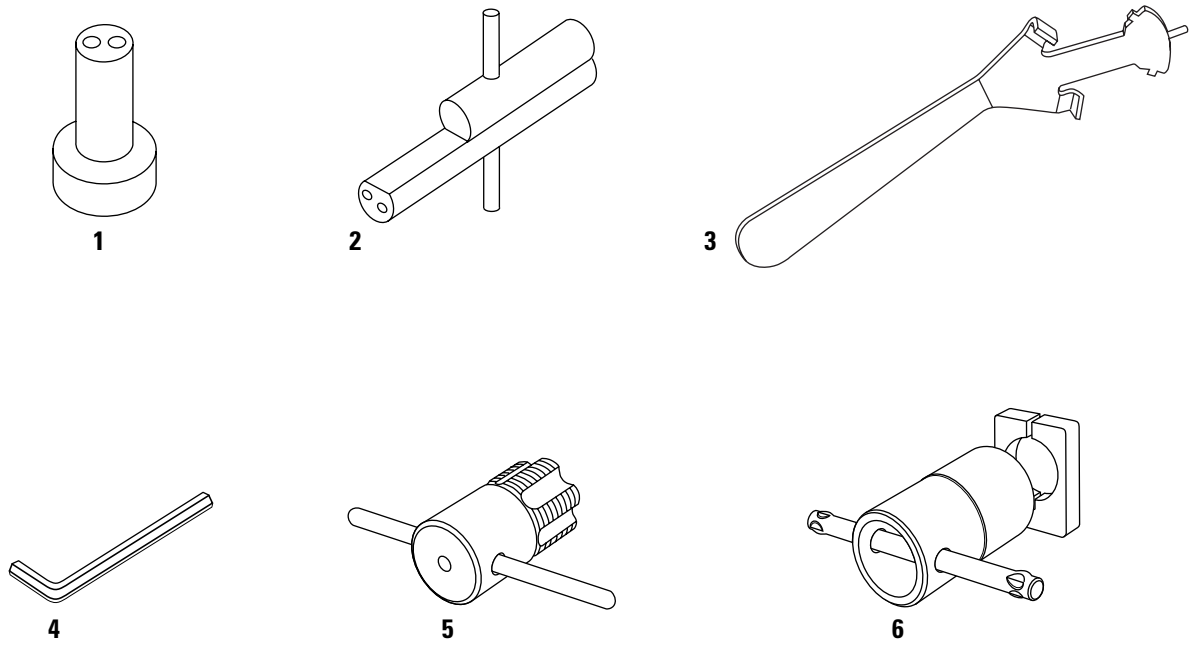


Figure 5.30 Service equipment

DRIVER BITS

Special driver bits for security head screws are described in the table and figure below.

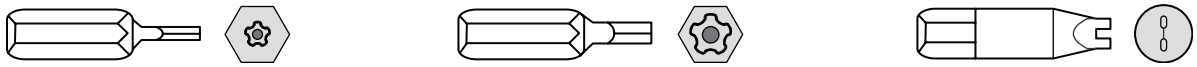


Figure 5.31 Driver bits

Type	Part number	Used for
TORX T15[a]	A34457	Security head trim mounting screw, thumb turn mounting screw, faceplate screw
TORX T25	A34458	Security head case mounting screw, strike screw
Spanner head	A34407	Lever set screw

a. TORX is a registered trademark of the Camcar Division of Textron.

6 SERVICE AND MAINTENANCE

This chapter contains instructions for servicing and maintaining 45H Lock components. For instructions for servicing and maintaining 48H Locks, see *Troubleshooting* on page 7-8.

CHANGING THE HAND

This section describes how to change the hand and/or bevel of the 45H mortise case. The section includes a quick reference and instructions.

Changing hand quick reference

Review the diagram below to understand the hand and bevel of the door.

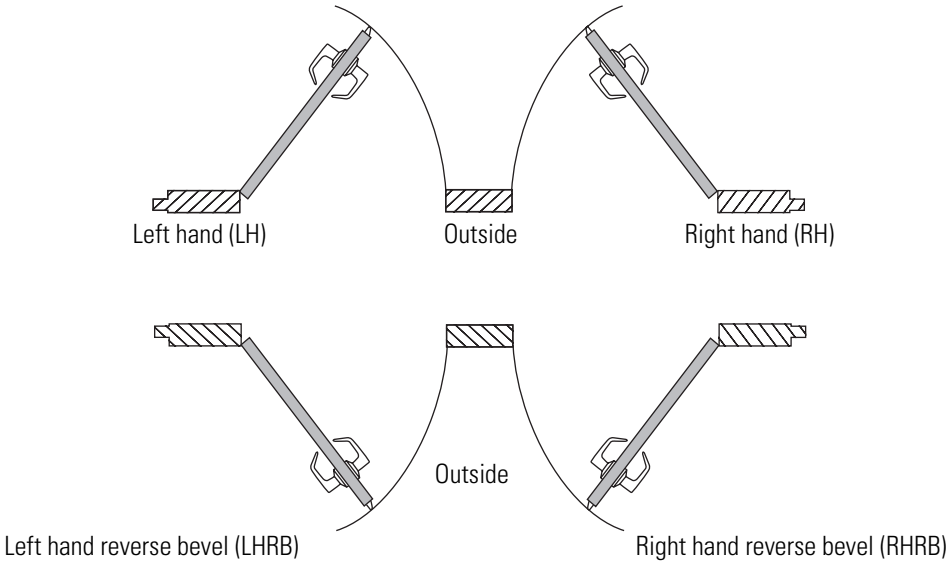


Figure 6.1 Explanation of the hand and bevel of the door

Changing handing for the mortise case

The handing of a 45H mortise case can be changed without opening the case. To change the hand, you need to rotate the latchbolt. For all lock functions except W and N, you also need to adjust the hub toggle positions. No steps are required for adjusting the bevel since the armored front on the 45H mortise case automatically adjusts to the bevel of the door when the case is installed.

To rotate the latchbolt:

1. Confirm that you need to rotate the latchbolt to match the handing of the door.

   Note: The angled surface of the latchbolt must contact the strike when the door closes.

2. To rotate the latchbolt, insert a flat blade screwdriver into the latch access point approximately 1/2″ into the case and press to extend the latch out of the case. See Figure 6.2.
3. Rotate the latchbolt 180 degrees and allow it to retract.

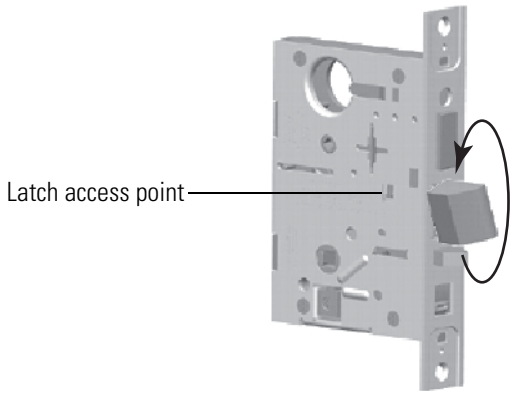


Figure 6.2 Rotating the latchbolt

To change the position of the hub toggles:

1. Refer to the table below and determine the proper position for the hub toggles.

Function	Hub toggle position
A, AB, AD, AT, D, G, HJ, IND, INL, L, LT, NX, R, RD, T, TA, TD, WD, XR, YD, ZD	Inside down (always unlocked) & outside up (lockable)
B, BA, BW, B5, B7, LB, S, W	Both up
N	Both down

Note: For LH and LHRB doors, the inside is the back side of the case and the outside is the cover side of the case. For RH and RHRB doors, the inside is the cover side of the case and the outside is the back side of the case.

2. To change the position of a hub toggle, remove the toggle screw, move the toggle into the desired position, and re-tighten the screw. See Figure 6.3.

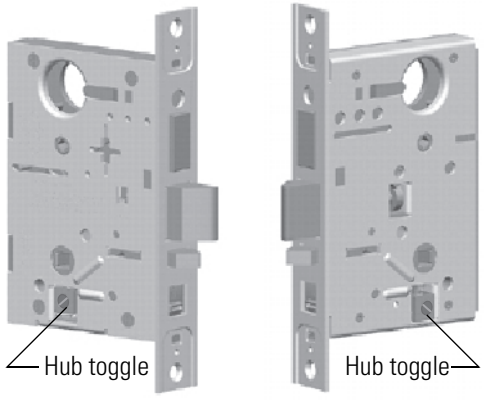


Figure 6.3 Positioning the hub toggles

CHANGING THE FUNCTION FOR UNIVERSAL CASES

This section provides instructions for changing the function for the 45H universal mortise cases (UNR, UNAB, and UNT). For information about which inside and outside trim kits to use with each function, see *Working with trim kits* on page 2-4.

Changing the function for UNR cases

The UNR mortise case can be configured for any of the following functions:

- A
- AT
- D
- INL
- N
- NX
- R

To convert the UNR case from one function to another, you need to adjust the shuttle screw positions and possibly the hub toggle positions.

To adjust the shuttle screw positions:

Refer to the table and guidelines below. Also, see Figure 6.4.

Note: To position the shuttle, insert a screwdriver into the opening for the thumb turn hub and rotate the shuttle.

- *For an N function*, position the shuttle towards the face of the case and move the shuttle screw from position 0, 2, or 3 to position 1. If converting from an A function configuration, move the shuttle screw from position 4 to position 5.
- *For a D, NX, or W function*, position the shuttle towards the back edge of the case and move the shuttle screw from position 0, 1, or 2 to position 3. If converting from an A function configuration, move the shuttle screw from position 4 to position 5.
- *For an A function*, position the shuttle in the middle of the case and move the shuttle screw from position 0, 1, 2, or 3 to position 4. Then move the shuttle screw from position 5 to position 2.

Function	Shuttle screw positions
A	2 & 4
AT, INL, R	0 & 5
D, NX, W	3 & 5
N	1 & 5

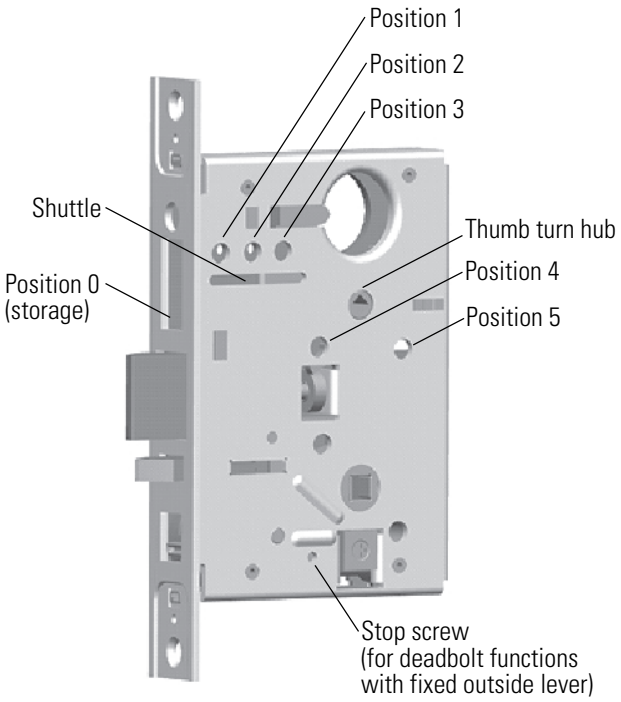


Figure 6.4 Positioning the shuttle screws and stop screw

To change the position of the hub toggles:

See *To change the position of the hub toggles:* on page 6-3.

Changing the function for UNAB cases

The UNAB mortise case can be configured for any of the following functions:

- AB
- TA
- TD

When converting from a TA or AB function configuration to a TD function configuration, install the self-tapping stop screw. See Figure 6.4.

When converting from a TD function configuration to a TA or AB function configuration, remove the stop screw. See Figure 6.4.

Changing the function for UNT cases

The UNT mortise case can be configured for either the L or T function. No change to the mortise case is required when changing between these functions; only trim changes are required.

TROUBLESHOOTING

This table summarizes the possible causes for certain lock problems. The causes of failure are listed in the order of likelihood. (The most likely cause is first, and so forth.)

For problems with the core and key, such as difficulty removing or inserting the key or difficulty turning the key, see the *Core and Key Service Manual*.

You notice…	Possible causes include…	You should…
Knobs or levers won't turn.	a. Spindle is not backed off.	a. Unscrew the inside spindle one full turn to allow the spindle to turn freely.
	b. Trim is out of alignment.	b. Loosen the trim and realign it so that the deadbolt does not bind.
Inside knob or lever does not remain unlocked.	Handing is reversed.	Change the handing (pg. 6-2).
Outside knob or lever won't lock.	Handing is reversed.	Change the handing (pg. 6-2).
Outside knob or lever droops.	Spindle has been twisted.	Replace the spindle (pg. 5-16).
Key will not operate latch or deadbolt.	a. Incorrect cam has been installed.	Install cylinder with proper cam (pg. 5-20).
	b. Cam has fallen to an inverted position.	Rotate the cam to the home position with a mortise wrench before installing the core.
Core will not install.	Cam has fallen to an inverted position.	Rotate the cam to the home position with a mortise wrench before installing the core.
Deadbolt will not or is difficult to retract or extend.	Trim is out of alignment.	Loosen the trim and realign it so that the deadbolt does not bind.
Deadbolt on deadbolt-only function will not extend.	Lock was ordered as an RD function.	Check the part nomenclature and ensure the RD function is needed for the application.
Deadbolt on deadbolt-only function will not retract.	Handing has been ordered incorrectly.	Check to ensure the case and thumb turn cylinder are the correct handing for the door. If not, order the correct case and thumb turn cylinder.
Lock does not function properly.	Universal case is incorrectly configured.	Configure the case to the desired function (pg. 6-4).

7

48H LOCKS

The following pages contain information about 48H Lock parts and maintenance.

FUNCTION QUICK REFERENCE

48H Functions	Description page number	Diagram page number
K	See page 7-3	See page 7-4
L	See page 7-3	See page 7-4
M	See page 7-3	See page 7-4
R	See page 7-3	See page 7-5

FUNCTION DESCRIPTIONS

The following lists describe how the deadbolt operates for 48H cylinder deadlock functions. When ordering a deadlock, specify the handing of the door.

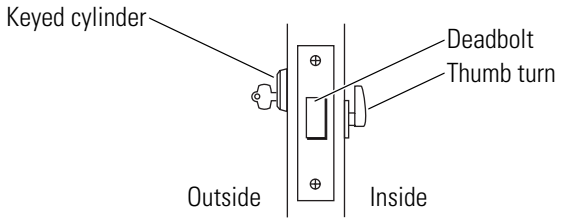
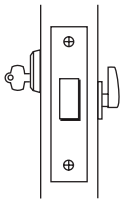


Figure 7.1 Understanding function drawings

Warning!

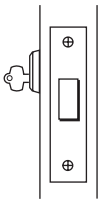
Locks that secure both sides of the door are controlled by building codes and the Life Safety Code. In an emergency exit situation, failure to quickly unlock the door could be hazardous or even fatal.

K–Cylinder deadlock



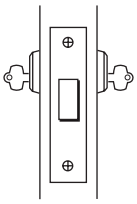
Deadbolt operated by:
- inside thumb turn
- outside key

L–Cylinder deadlock



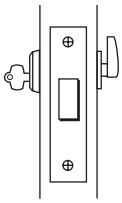
Deadbolt operated by:
- outside key

M–Cylinder deadlock



Deadbolt operated by:
- inside or outside key

R–Cylinder deadlock



Deadbolt operated by:
- outside key
- inside thumb turn

Note 1: Specify the hand of the door.
Note 2: Inside turn knob retracts the deadbolt, but does not project it.
Note 3: Can be used on 1 3/4″ thick doors only.

48H MORTISE CASE PARTS

The following pages contain exploded diagrams and parts lists for 48H mortise cases.

K FUNCTION CASE—CYLINDER DEADLOCK
L FUNCTION CASE—CYLINDER DEADLOCK
M FUNCTION CASE—CYLINDER DEADLOCK

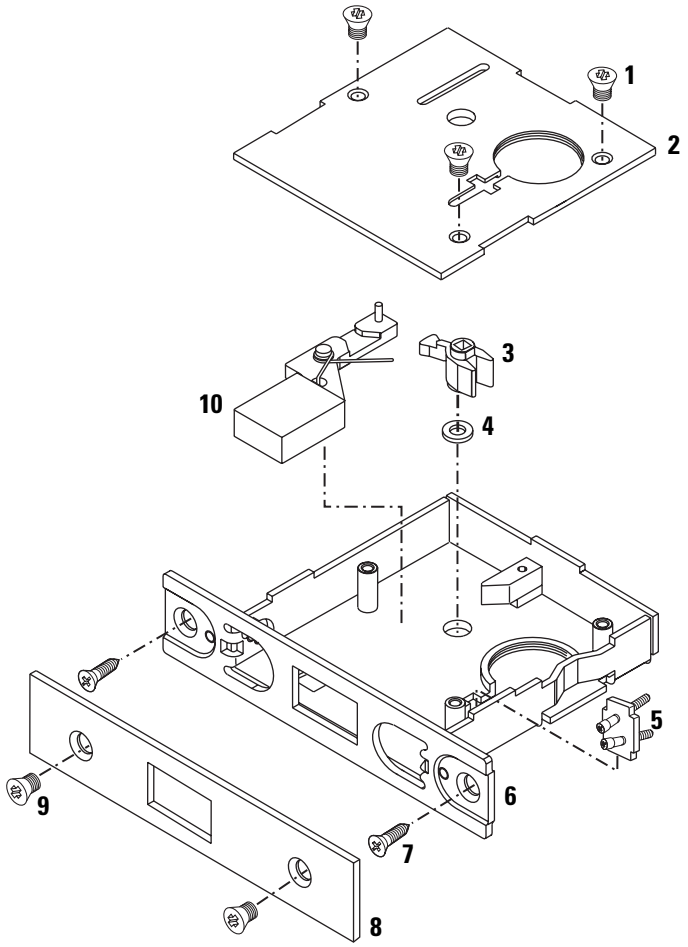


Figure 7.2 K, L, M function case

K, L, M function parts list

Refer to Figure 7.2 and the table below to find the part you need.

Item	Part No.†	Qty.	Description
1	A34087	3	Case cover mounting screw
2	C34351	1	Cover
3	C34011	1	Turn knob hub
4	A34194	1	Turn knob hub spacer
5	A35022	1	Double cylinder clamp plate
6	B35402	1	Case sub-assembly
7	A18724	2	Case mounting screw (#12-12 × 3/4″ PHFH)
8	B34353	1	Faceplate
9	A18722	2	Faceplate screw (#8-32 × 1/4″ PHFHMS)
10	B35399	1	Deadbolt

†. For a complete case, use B35403 and indicate the function.

R FUNCTION CASE—CLASSROOM DEADLOCK

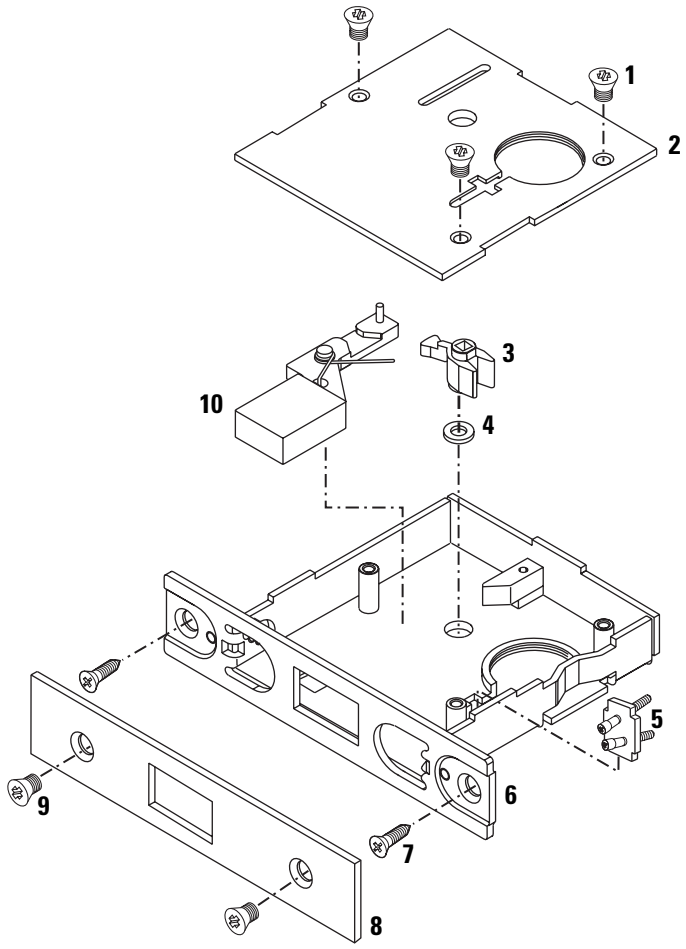


Figure 7.3 R function case

R function parts list

Refer to Figure 7.3 and the table below to find the part you need.

Item	Part No.†	Qty.	Description
1	A34087	3	Case cover mounting screw
2	C34351	1	Cover
3	A63001	1	"R" turn knob hub (left hand)
not shown	A63002	1	"R" turn knob hub (right hand)
4	A34194	1	Turn hub spacer
5	A35022	1	Double cylinder clamp plate
6	B35402	1	Case sub-assembly
7	A18724	2	Case mounting screw (#12-12 × 3/4″ PHFH)
8	B34353	1	Faceplate
9	A18722	2	Faceplate screw (#8-32 × 1/4″ PHFHMS)
10	B35399	1	Deadbolt

†. For a complete case, use B35403 and indicate the function and handing.

TRIM PARTS

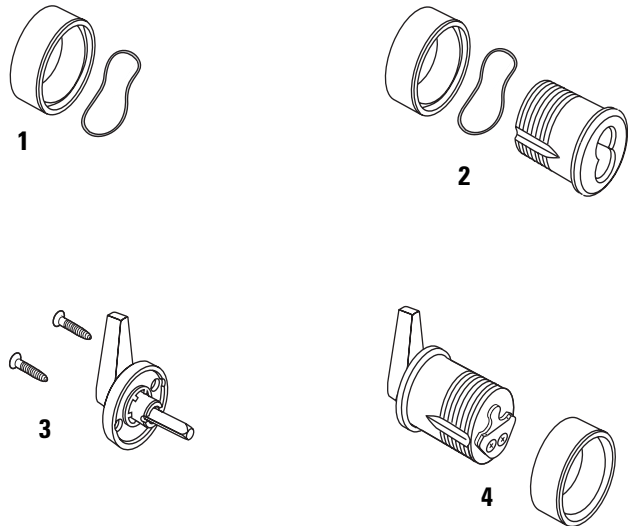


Figure 7.4 Deadbolt trim

Parts list Refer to Figure 7.4 and the table below to find the trim part you need.

Item	Part No.	Description	K	L	M	R
1	B35103	Cylinder ring assembly for single-keyed functions†	■	■		■
not shown	B35105	Cylinder ring assembly for double-keyed functions†			2	■
2	See page 5-1	OS4 trim kit	■	■	2	■
3	See page 5-6	IS5 trim kit	■			
4	B35401	Turn knob cylinder for right hand doors				■
not shown	B35405	Turn knob cylinder for left hand doors				■

†. Includes wavy washer.

STRIKES AND STRIKE BOXES

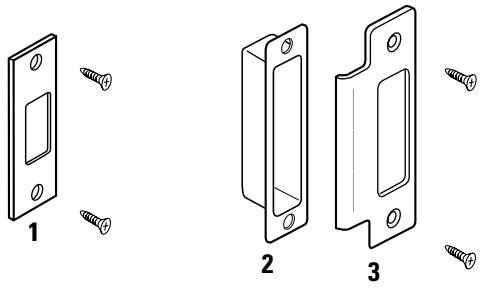


Figure 7.5 Strikes and strike box

Parts list Refer to Figure 7.5 and the table below to determine what strike part number to use for your 1 3/4″ thick door.

Item	Part No.	Description
not shown	C34361	48HS1 strike box
1	A34360	48HS1 strike (non-beveled)
2	B34380	48HS2 strike box
3	C18731	48HS2 strike (beveled)

TROUBLESHOOTING

This table summarizes the possible causes for certain lock problems. The causes of failure are listed in the order of likelihood. (The most likely cause is first, and so forth.)

For problems with the core and key, such as difficulty removing or inserting the key or difficulty turning the key, see the *Core and Key Service Manual*.

You notice…	Possible causes include…	You should…
Deadbolt will not extend.	Lock was ordered as an R function.	Check the part nomenclature and ensure the R function is needed for the application.
Deadbolt will not retract.	Handing has been ordered incorrectly.	Check to ensure the case and thumb turn cylinder are the correct handing for the door. If not, order the correct case and thumb turn cylinder.
Key will not operate latch or deadbolt.	Incorrect cam has been installed.	Install cylinder with proper cam (pg. 7-6).

A GLOSSARY

Armored front — The mortise lock front and faceplate designed to prevent tampering with the cylinder retainer screw and case mounting screws.

Auxiliary dead latch — A latch that prevents the latchbolt from being loided when the door is closed. See *loiding*.

Backset — The distance from the faceplate to the center of the cylinder or lever/knob.

Bevel — See *Door bevel*.

Cam — See *Cylinder cam*.

Core — See *Interchangeable core*.

Cylinder — See *Mortise cylinder*.

Cylinder cam — A rotating part of a keyed cylinder that drives the deadbolt or latchbolt.

Cylinder die — A tool for rethreading a 1 5/32″ diameter cylinder.

Cylinder ring — A metal ring that fits around the cylinder and protects it from tampering. The cylinder ring also spaces the cylinder out to the right position.

Cylinder tap — A tool for rethreading case threads.

Cylinder wrench — A tool for installing, removing, and testing cylinders.

Door bevel — The angle on the edge of a door.

Dummy cylinder — A nonfunctional mortise cylinder used only to plug a cylinder hole.

Dummy trim — Trim only (without lock). Used mainly on the inactive door of a double door.

Emergency key The key that retracts the deadbolt of a privacy lock (L or LT function).

Escutcheon A surface-mounted plate that covers holes that were made in the door for knobs and cylinders.

Faceplate A finished part of a mortise lock that covers the armored front. See *Armored front.*

Figure-8 The basic shape of the interchangeable core and its housing (door knob, cylinder, padlock, and so forth). See also *Interchangeable core*.

Hand of door The swing direction of the door as viewed from the outside of the door. A right-handed (RH) door is hinged on the right and swings inward. A left-handed (LH) door is hinged on the left and swings inward. If either of these doors swings outward, it is a right-hand reverse bevel (RHRB) door, or a left-hand reverse bevel (LHRB) door respectively.

High edge of door bevel The edge of the door that is closer to the frame.

Hub toggle Mortise case feature used upon installation to configure the inside and outside knob/levers as always unlocked or lockable for selected lock functions.

Interchangeable core A figure-8 shaped device that contains all mechanical parts for a masterkeyed system. The interchangeable core can be removed by a special control key and can be recombinated without disassembling the lock. See also *Figure-8.*

Life Safety Code® A document, developed by the National Fire Protection Association (NFPA) that regulates building construction to prevent injury in case of fire. Code sections 2-4, and 5-2.1.5 apply to locks and latches.

Lock function The way a lock operates. The function determines appropriate applications for the lock, such as; how the latchbolt is operated, how the deadbolt is operated, and how the knobs/levers are locked and unlocked.

Locking toggle Mortise case feature that allows a user to lock or unlock the outside lever or knob for selected lock functions.

Loiding A burglary attack method that uses a credit card-like object. This object is inserted between the door and the frame to separate the latchbolt from the strike.

Mortise cylinder A threaded lock cylinder that screws directly into the lock case. A key-driven rotating cam, attached to the back, drives the locking mechanism.

Mortise cylinder cam assembly tool A tool for assembling the cylinder cam to the mortise cylinder.

Mortise A rectangular cavity cut into the edge of a door. Can also mean the act of making such a cavity.

Mortise lock A lock that fits into a mortise. Other locks fit into bored holes or mount to a surface. See also *Mortise.*

Removable core See *Interchangeable core.*

Reverse bevel See *Hand of door.*

Shifting cam A spring-loaded cam that shifts back to drive another mechanism. See also *Cylinder cam.*

Spanner wrench A wrench used to tighten a rose ring onto a door.

Stop screw Mortise case feature that fixes the position of the outside lever for TD, B, BW, H, and HJ deadbolt function locks.

Swing See *Hand of door.*

Tactile lever/knob A lever/knob with deep grooves cut into its surface. Tactile grooves improve grip and can also serve as a warning when entering hazardous areas.

Template A precise, detailed hole pattern that serves as a guide for the mortising and drilling of doors and frames.

B

INSTALLATION INSTRUCTIONS

The following pages contain:

- *Installation Instructions for 45H Mortise Locks*
- *Installation Instructions for 48H Mortise Locks*

Installation Instructions for 45H Mortise Locks

Certain functions, trim styles, and features may not be immediately available. Contact your local BEST representative for details.

Finishing the door preparation

Contents

These installation instructions describe how to install your 45H Mortise Lock. Topics covered include:

Finishing the door preparation 1
Configuring and installing the mortise case 3
Installing the trim 5
Finishing the installation 7

For instructions to install the following trim items, see the *Supplemental Installation Instructions for 45H & 47H Mortise Locks (T81167)*:

- high-security cylinder
- trim one side functions
- dummy trim
- vandal resistant trim
- "occupied" indicator
- holdback functions

1 Identify holes to drill

1 Determine the lock function to be installed.
2 Determine the inside and outside, hand, and bevel of the door.
3 See the *Holes by Function* table and Figure 1 to determine the holes to be drilled for the lock function.

For hole sizes, see the H15 Template—Installation Template for 45H & 47H Mortise Locks *(T81163).*

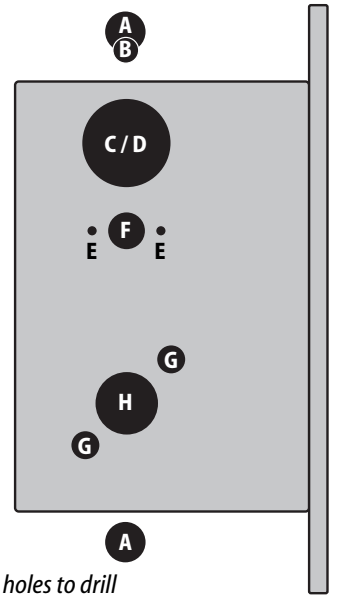


Figure 1 Identifying holes to drill

Holes by Function

Holes to drill	Functions: A, D, R, RHB, B5 I/S	A, D, R, RHB, B5 O/S	AB, B, BA, BW, H, HJ, T, TA, TD I/S	AB, B, BA, BW, H, HJ, T, TA, TD O/S	AD I/S	AD O/S	C, CHB, G, IND, INL, S, W, B7 I/S	C, CHB, G, IND, INL, S, W, B7 O/S	L, LB, LT I/S	L, LB, LT O/S	N, NX I/S	N, NX O/S	RD, WD I/S	RD, WD O/S	YD I/S	YD O/S
A M & N forged trim (2 holes)†	Through door		Through door		Through door		Through door		Through door		Through door		Through door		Through door	
B J trim†	Through door		Through door				Through door		Through door		Through door					
C Standard cylinder *or* **D** High security cylinder‡		■		■		■	■	■					■	■		■
E H, R & S trim thumb turn mounting screw (2 holes)†			■		■				■							
F Emergency key / thumb turn access			■		■				■	■						
G Trim mounting (2 holes)††	■	■	■	■			■	■	■	■	■	■				
H Lever††	■	■	■	■			■	■	■	■	■	■				

† Determine trim holes based on trim type.
‡ To qualify for the UL 437 high security listing, use the M escutcheon and the 1E7J4 cylinder. The 1E7K4 cylinder is available for use with either M trim or sectional trim, but does not qualify for the UL437 high security listing. This option is not available for H and HJ function locks.
†† Because these holes pass through the mortise pocket, it is recommended that each hole be drilled separately rather than straight through.

Finishing the door preparation

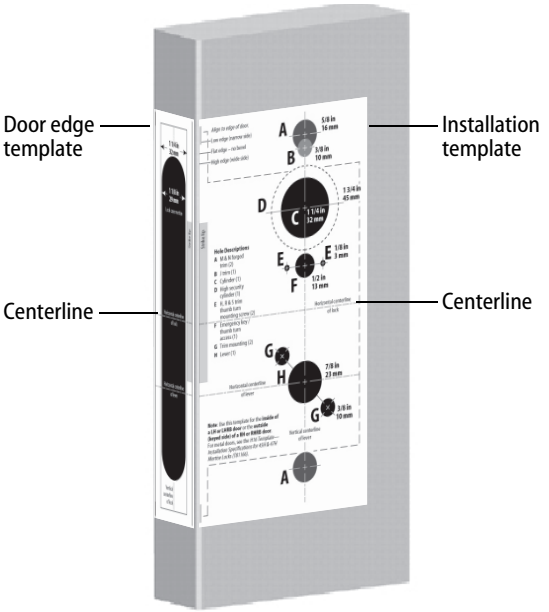


Figure 2 Aligning the templates

2 Align templates

Note: *If the door is a fabricated hollow metal door, determine whether it is properly reinforced to support the lock. If door reinforcement is not adequate, consult the door manufacturer for information on proper reinforcement. For dimensions for preparing metal doors, see the* H16 Template—Installation Specifications for 45H & 47H Mortise Locks *(T81166).*

1 Separate the 4 templates provided on the *H15 Template—Installation Template for 45H & 47H Mortise Locks* (T81163).

2 Position one of the door edge templates on the door, making sure that the lock case mortise shown on the template aligns with the mortise pocket prepared in the door.

3 Using the centerlines on the door edge template as a guide, position the appropriate door template on each side of the door. You need to take the bevel into account. Tape the templates to the door.

3 Center punch and drill holes

1 Center punch the necessary drill points. See the instructions on the template.

2 Drill the holes.

Note 1: *To locate the center of a hole on the opposite side of the door, drill a pilot hole completely through the door.*

Note 2: *For holes through the door, it is best to drill halfway from each side of the door to prevent the door from splintering.*

Configuring & installing the mortise case

4 Rotate latchbolt *(if necessary)*

Note: *If a function specific mortise case was ordered, some steps for configuring the case have already been performed at the factory.*

1 Determine whether you need to rotate the latchbolt to match the handing of the door.

Note: *The angled surface of the latchbolt must contact the strike when the door closes.*

2 If you need to rotate the latchbolt, insert a flat blade screwdriver into the latch access point approximately 1/2″ into the case and press to extend the latch out of the case. See Figure 4.

3 Rotate the latchbolt 180 degrees and allow it to retract into the case.

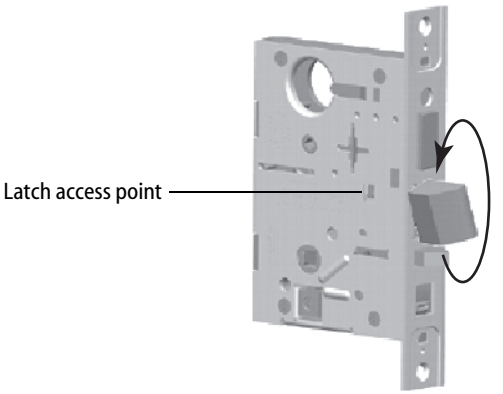


Figure 4 Rotating the latchbolt

5 Set shuttle screws *(UNR case only)*

Note 1: *The UNR (universal latch) mortise case is shipped with the shuttle screws in position 0 and position 5.*

Note 2: *To position the shuttle, insert a screwdriver into the opening for the thumb turn hub and rotate the shuttle.*

- *For an N function*, position the shuttle towards the face of the case and move the shuttle screw from position 0 to position 1.
- *For a D, NX, or W function*, position the shuttle towards the back edge of the case and move the shuttle screw from position 0 to position 3.
- *For an A function*, position the shuttle in the middle of the case and move the shuttle screw from position 0 to position 4. Then move the shuttle screw from position 5 to position 2.

Shuttle screw positions

Function	Shuttle screw positions
A	2 & 4
AT, C, INL, R, RHB	0 & 5
D, NX, W	3 & 5
N	1 & 5

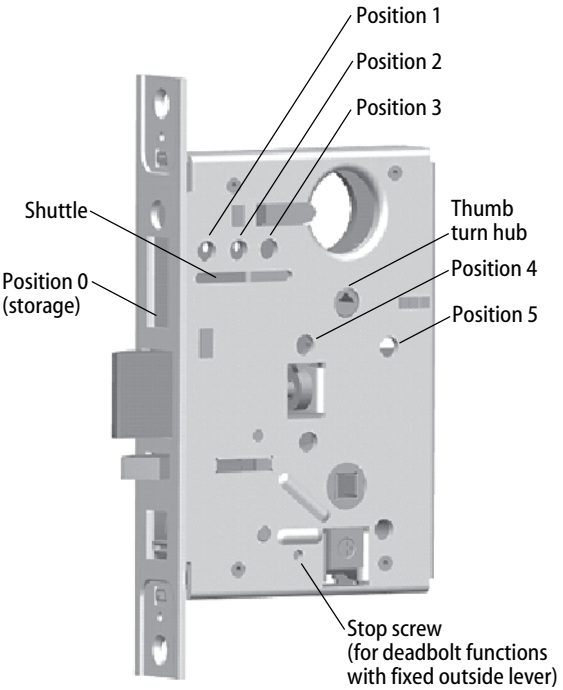


Figure 5 Setting the shuttle screws and stop screw

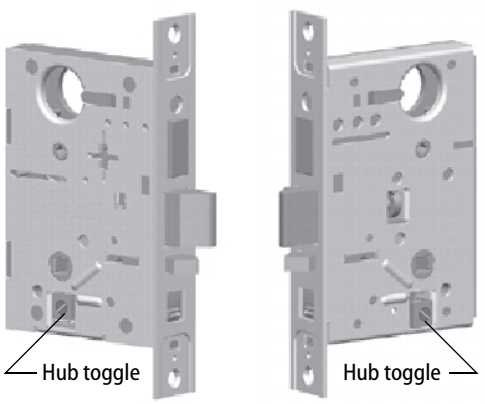


Figure 6 Positioning hub toggles

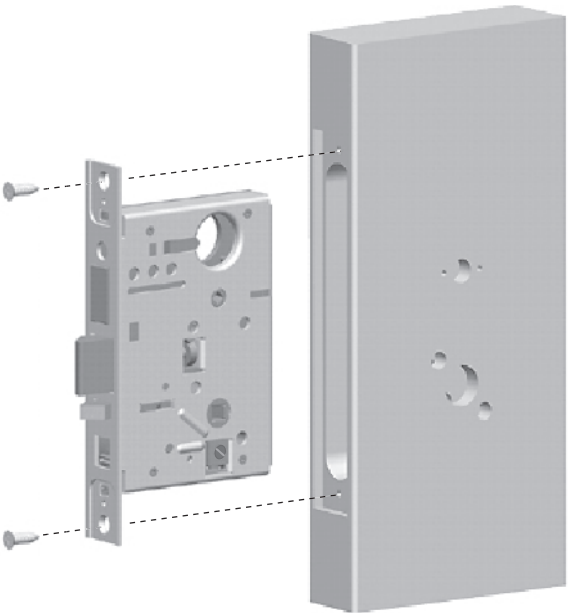


Figure 8 Installing the mortise case

6 Position hub toggles *(if necessary)*

1 Check whether the hub toggles are in the proper position for the lock. See the table below and Figure 6.

Hub toggle positions

Function	Hub toggle positions
A, AB, AD, AT, C, CHB, D, G, H, HJ, IND, INL, L, LT, NX, R, RD, RHB, T, TA, TD, WD, YD	Inside down (always unlocked) & outside up (lockable)
B, BA, BW, B5, B7, LB, S, W	Both up
N	Both down

Note: *For LH & LHRB doors, the inside is the back side of the case and the outside is the cover side of the case. For RH & RHRB doors, the inside is the cover side of the case and the outside is the back side of the case.*

2 To change the position of a hub toggle, remove the toggle screw, move the toggle into the desired position, and re-tighten the screw.

7 Install stop screw *(deadbolt functions with fixed outside lever only)*

Note: *The TD, B, BW, H, and HJ deadbolt functions, which have a fixed outside lever, require the stop screw.*

If converting a UNAB (universal deadbolt) mortise case to one of the above functions, install the self-tapping stop screw. See Figure 5 on page 3.

8 Install mortise case

1 Drill the holes for the case mounting screws.

2 Insert the mortise case into the mortise cavity.

Note: *The armored front of the mortise case self-adjusts to the door bevel.*

3 Secure the mortise case with the case mounting screws.

Installing the trim

9 Install trim mounting plates

1 *For J trim*, position the J alignment plate (not shown) on the outside of the door.

2 *For all trim*, insert the outside trim mounting plate through the door and mortise case.

3 Position the inside trim mounting plate opposite the outside trim mounting plate and screw them securely in place.

Caution: **Do not overtighten the trim mounting plate screws. Overtightening may damage the locking mechanism.**

10 Install concealed cylinder *(N trim only)*

1 Use a cylinder wrench (ED211) to thread the cylinder into the mortise case so that the groove around the cylinder is even with the door surface.

Caution: **A malfunction can occur if the cylinder is threaded in too far.**

2 Secure the cylinder in the mortise case with the cylinder retainer screw. See Figure 13 on page 6.

11 Install escutcheons or roses

1 Position the inside and outside escutcheons or roses on the door so they are centered on the trim mounting plates.

2 *For escutcheons* (not shown), install the escutcheon screw(s) from the inside of the door.

3 Use the spanner wrench (KD316) to install the inside and outside rose rings onto the trim mounting plates.

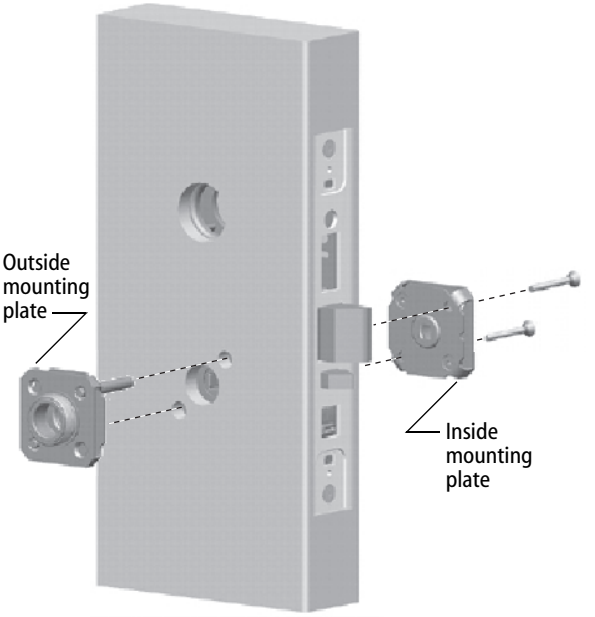


Figure 9 Installing the trim mounting plates

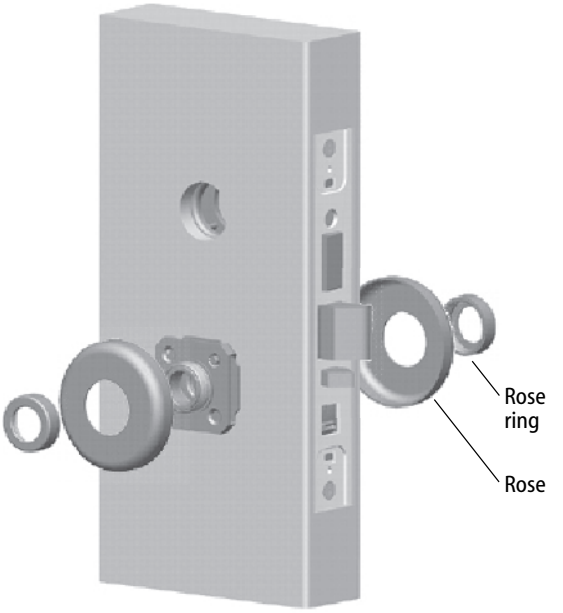


Figure 11 Installing the escutcheons or roses

Installing the trim

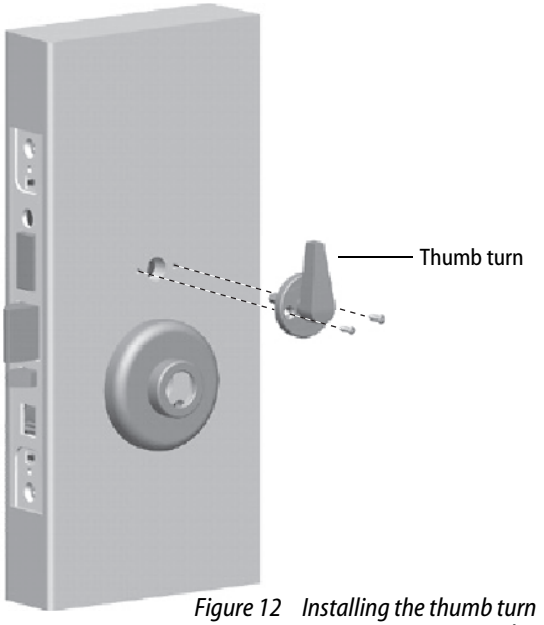


Figure 12 Installing the thumb turn or emergency access plate

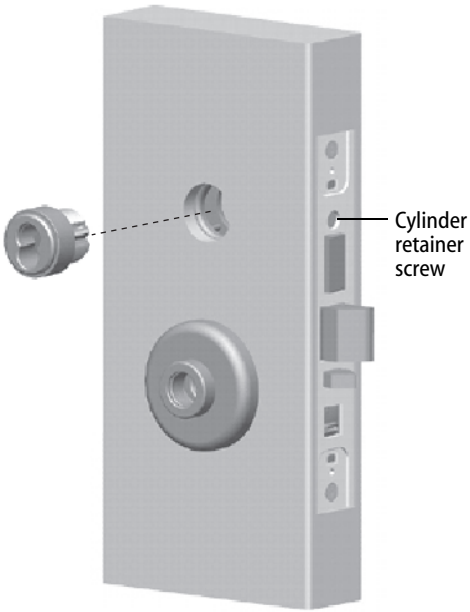


Figure 13 Installing the standard cylinder

12 Install thumb turn or emergency access plate *(if necessary)*

Note 1: *Install the thumb turn on the inside of the door for the following lock functions:*

- *AB*
- *AD*
- *AT*
- *H*
- *HJ*
- *L*
- *LT*
- *RD*
- *TA*
- *TD*
- *WD*
- *YD*

Note 2: *Install the emergency access plate on the outside of the door for privacy function (L, LB, LT) locks.*

1 Orient the thumb turn so it points up when the deadbolt is retracted and towards the hinge edge of the door when the deadbolt is extended.

2 Install the thumb turn or emergency access plate using the two screws provided. See Figure 12.

13 Install standard cylinder(s)

1 Make sure the washer and cylinder ring are positioned on the cylinder.

2 Use a cylinder wrench (ED211) to thread the cylinder into the mortise case so that the cylinder ring is flush against the door.

Caution: **A malfunction can occur if the cylinder is threaded in too far.**

3 Secure the cylinder in the mortise case with the cylinder retainer screw.

Finishing the installation

14 Install inside and outside levers

1 Unscrew the inside spindle one full turn to allow the spindles to turn freely.

Note: *Remove the label from the inside spindle.*

2 With the handle pointing toward the door hinges, insert the outside lever and spindles assembly into the lock from the outside of the door.

3 Slide the inside lever onto the inside spindle and secure it with the set screw.

4 Turn the levers to check that they operate smoothly.

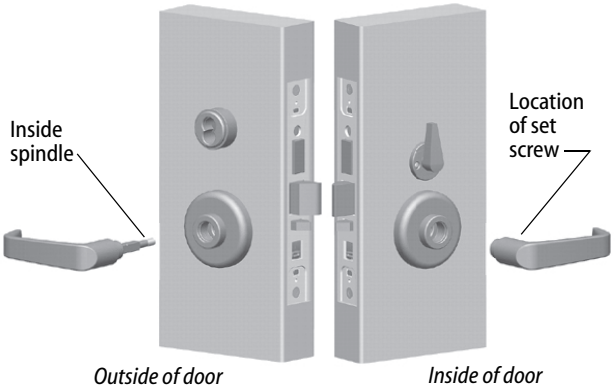


Figure 14 Installing the levers

15 Install mortise case faceplate

Note: *Most locks ship with only one faceplate. The UNAB and UNR locks ship with two faceplates each, allowing for multiple function configurations. For AB (UNAB) and A (UNR) function locks, use the faceplate that exposes the locking toggle.*

1 Secure the mortise case faceplate to the mortise case with the faceplate mounting screws.

2 Check the lock for proper operation.

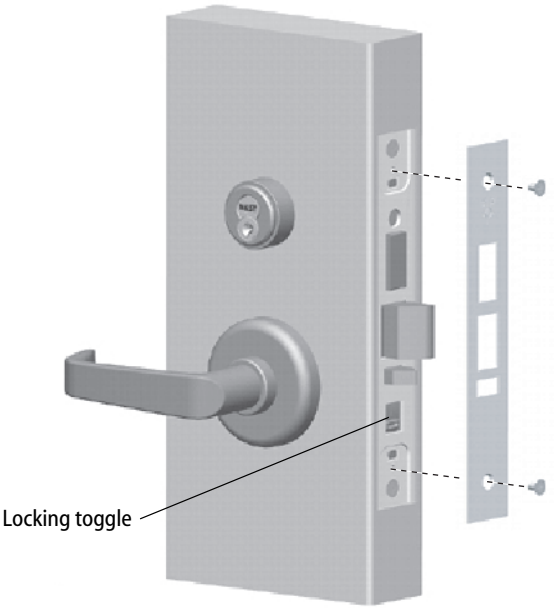


Figure 15 Installing the mortise case faceplate

Finishing the installation

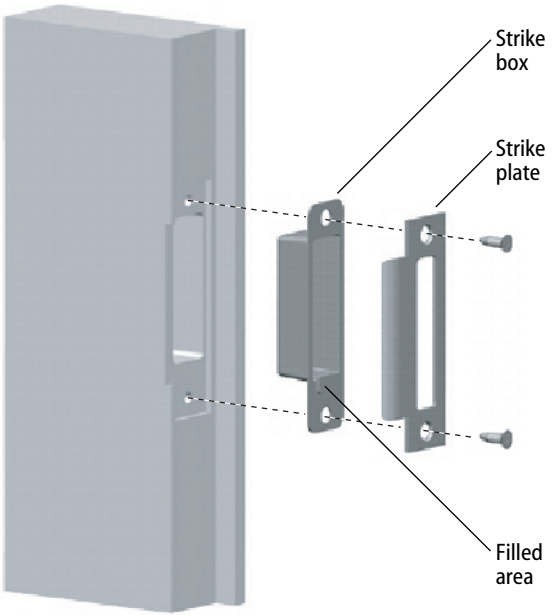


Figure 16 Installing the strike box and strike plate

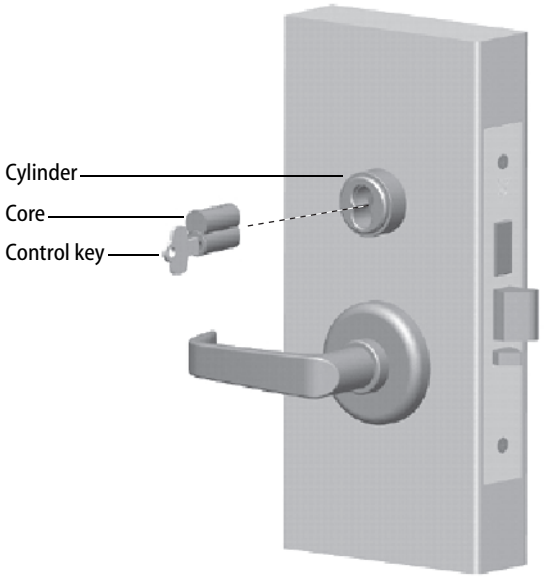


Figure 17 Installing the core(s)

16 Install strike box and strike plate

1 *If the door jamb has not been mortised for the strike box and strike plate*, perform these steps:
   a On the door jamb, locate the horizontal centerline of the strike (3/8″ above the centerline of the lock), as well as the vertical centerline of the strike.
   b Mortise the door jamb to fit the strike box and strike plate.
   c Drill the holes for the screws used to install the strike box and strike plate.
2 Orient the strike box so that the filled area of the box is down. Then insert the strike box into the mortise in the door jamb. Place the strike plate over the strike box and secure the strike with the screws provided.
3 Check the position of the auxiliary bolt against the strike box.

   Note: *The recommended gap between the door and jamb is 1/8″ .*

17 Install cores

1 Insert the control key into the core and rotate the key 15 degrees to the right.
2 With the control key in the core, insert the core into the cylinder.
3 Rotate the control key 15 degrees to the left and withdraw the key.

   Caution: **The control key can be used to remove cores and to access doors. Provide adequate security for the control key.**

18 Check operation

Check the operation of the lock. For example, check that:

- door latches and opens properly
- deadbolt operates properly
- key access works
- door gap is 1/8″
- auxiliary bolt is held inside the case when the door is closed.

For assistance, contact your local BEST representative.

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T81162/Rev A 1907197 ER-7991-12 Feb 2006

Installation Instructions for 48H & 49H Mortise Locks

Overview

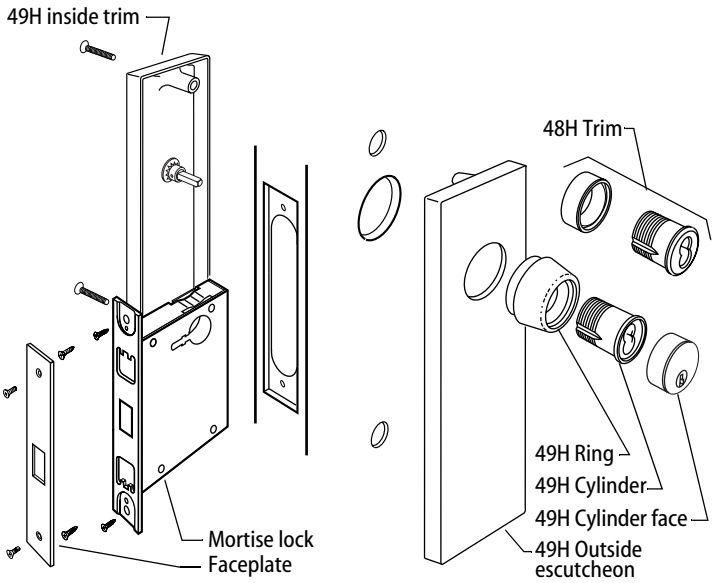

Figure 1 48H and 49H Mortise Lock overview diagram

1 Mark centerlines

Caution: **If you use hollow metal doors, decide whether the doors are reinforced enough to support the lock. If the door reinforcement is not adequate, consult the door manufacturer about proper reinforcement.**

Note: *Prepare the door according to ANSI A115.1 before using these instructions.*

1 Mark the horizontal centerline of the lock on both sides of the door and on the door's edge.

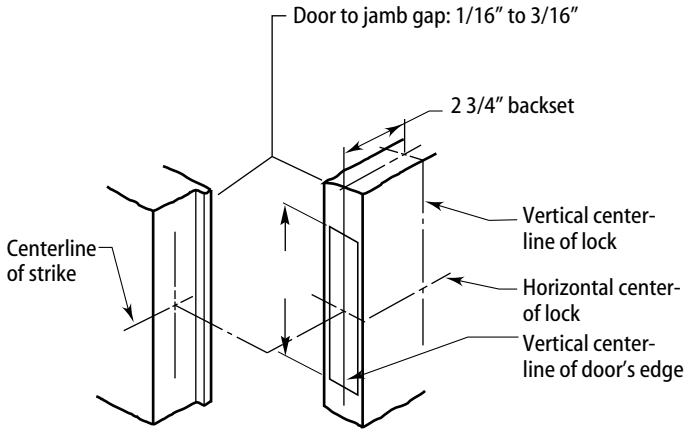
Door to jamb gap: 1/16" to 3/16"
2 3/4" backset
Centerline of strike
Vertical centerline of lock
Horizontal centerof lock
Vertical centerline of door's edge

Figure 2 Marking the centerlines on the door

Note: *BEST suggests a 38" height as measured from floor to lock centerline.*

2 Mark the vertical centerline of the lock on the door edge.
3 Mark the vertical centerline of the lock on both sides of the door as measured from the vertical centerline on the door's edge.
4 Mark the horizontal centerline of the strike on the door jamb in line with the centerline of the lock.

2 Mark drill points

1 Cut the H18 template along the dotted line and align the horizontal and vertical arrows to the marked centerlines on the door.

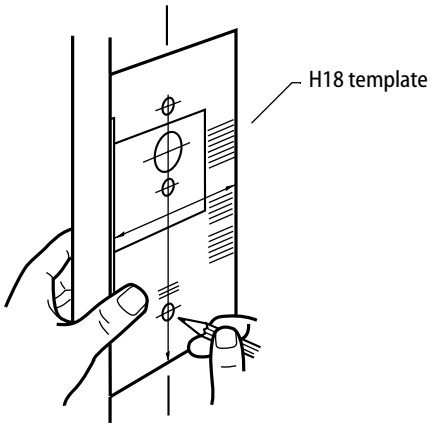

Figure 3 Marking the drill points with the template

2 Tape the template onto the door.

3 Install strike

1 Using the H18 template, mortise the jamb and install the strike and strike box. See *Installation Specifications,* Template H17 for dimensions.

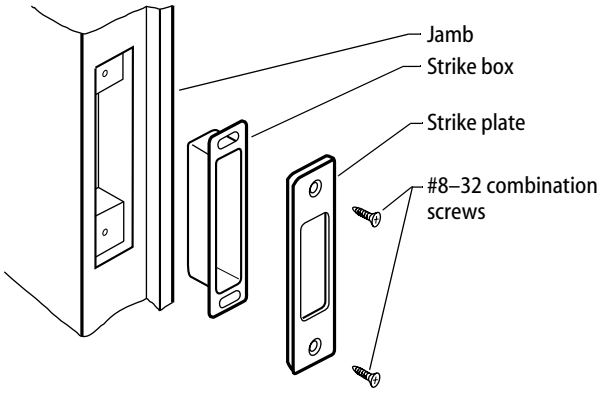

Figure 4 Installing the strike box and strike

4 Mortise and drill holes

1 Mortise the door for the lock case and faceplate.

Note: *Check the lock for function before drilling.*

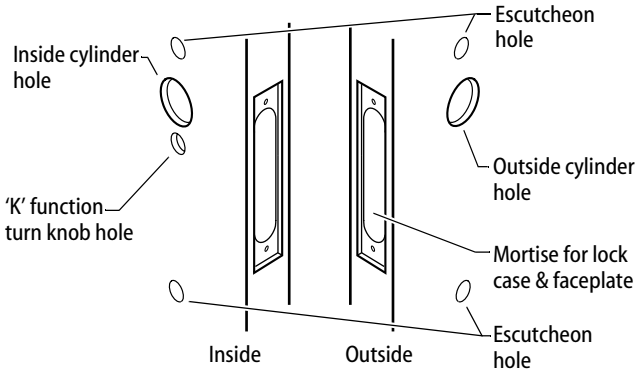

Figure 5 Mortising and drilling holes

2 Drill only those holes required for the lock function and trim. See Installation Specifications for hole requirements in Template H17.

5 Install mortise case

1 Remove the faceplate from the lock.

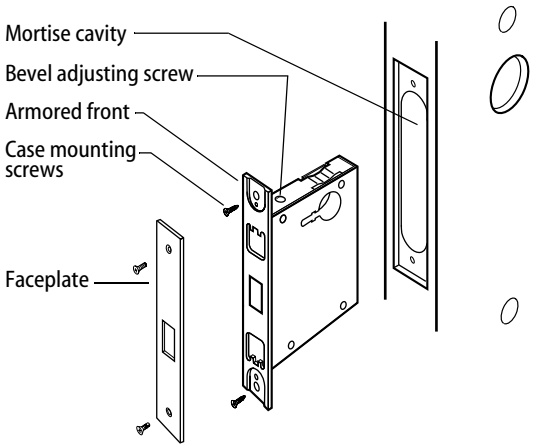

Figure 6 Installing the mortise case

2 Loosen the bevel adjusting screws on the top and bottom of the lock case and adjust the bevel of the armored front to match the door bevel. Retighten the screws.

For 'R' function only:

■ Check the cylinder and lock for proper operation.

Caution: **If the handing of the 'R' turn knob is incorrect, you can be locked in.**

3 Install the lock into the mortise cavity.
4 Secure the lock case with the case mounting screws.

6 Install trim

To install 48H trim:

1 Install cylinder(s) and ring(s) and fasten with cylinder clamp screw(s).
2 Install thumb turn if needed.
3 Reinstall the faceplate.

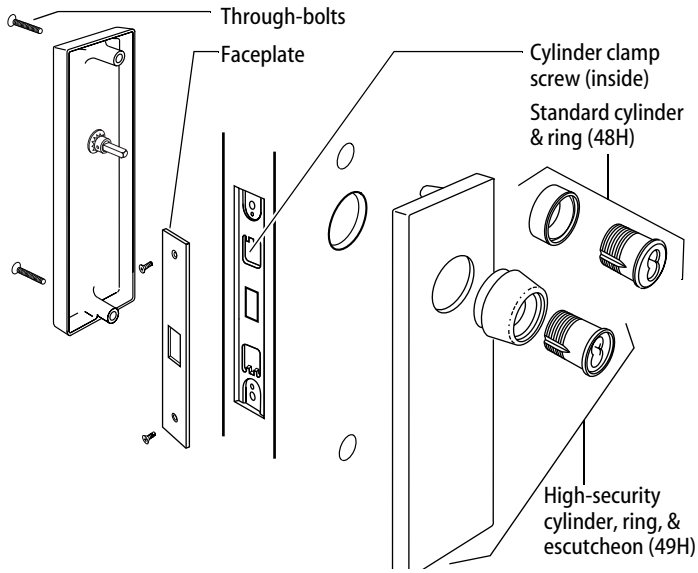

Figure 7 Installing 48H or 49H trim

4 Check the lock for proper operation.

To install 49H trim:

1 Position inside and outside escutcheons opposite each other and screw them loosely in place.
2 Put the high security cylinder(s) and ring(s) into the cylinder hole(s). Thread the cylinder(s) into the case until the cylinder head touches the inside rim of the ring.
3 Secure the cylinder(s) with the cylinder clamp screw(s).
4 Tighten the through-bolts.
5 Reinstall the faceplate.

7 Install core

For 5C cores only:

■ Slide the cylinder face down over the 5C core.

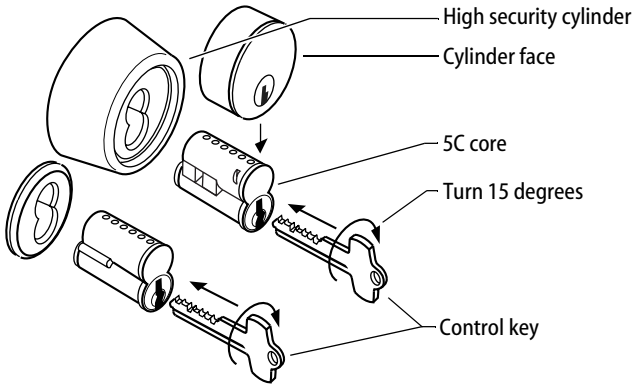

Figure 8 Installing the core

For all cores:

1 Put the control key into the core (or cylinder face) and turn the key 15 degrees clockwise.
2 Adjust the throw pins if needed, then put the core (and cylinder face) into the cylinder with the control key.
3 Turn the key 15 degrees counterclockwise and remove the key.
Note: *Follow these steps to remove the core also.*

C

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